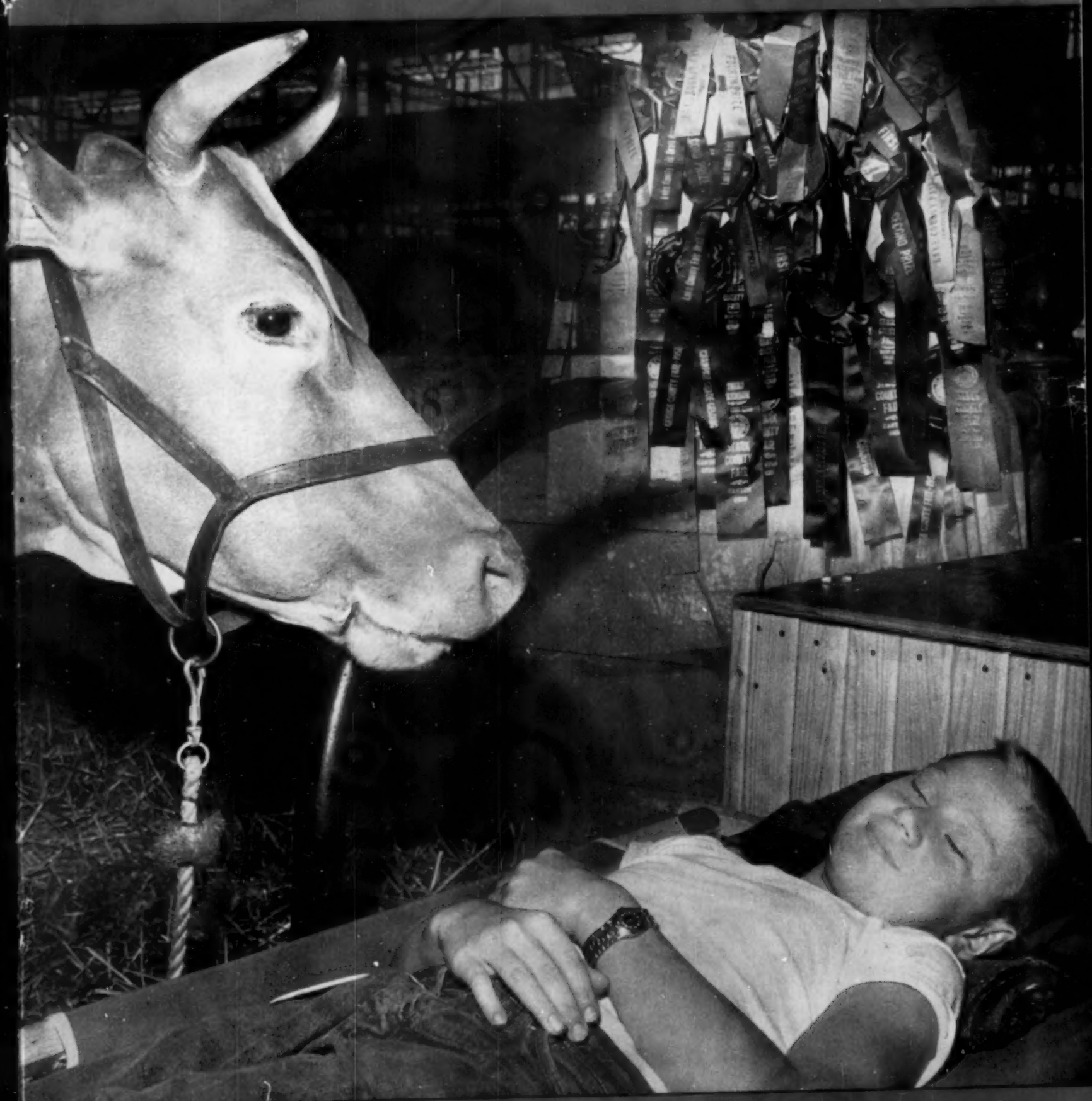
HOARD'S DAIRYMAN

AUGUST 10, 1958



THE NATIONAL DAIRY FARM MAGAZINE

"Our DARI-KOOL Has Operated 4 Years Without A Service Call!"

Write MR. & MRS. HARVEY HAGENOW
Readlyn, Iowa

"We have had our bulk tank for almost four years and we are certainly glad we chose a Dari-Kool tank. We feel there isn't anything better than stainless steel for the outside as well as the inside of a bulk tank. It is very easy to clean and always looks just like the day we installed it. In the four years we have had our Dari-Kool we have never had to have a service call. It has been trouble-free, and we are sure it will continue to be for many more years."

(signed)

Mr & Mrs Harvey Hagenow

Mr. Hagenow's tank is on E.O.D. pick-up. It is filled to capacity on pick-up day. Dari-Kool's 2-speed agitator provides ideal milk agitation. The slow speed is used during the cooling cycle; the high speed for composite sampling.

The ICE BANK COOLER that Outperforms and Outsells them all!

Model shown DKS-200 (200 gallon capacity) Available in 100 to 1000 gallon capacities.

DARI-KOOL MEETS ALL 3A STANDARDS

DARI-KOOL BULK MILK COOLER

Write Dept. 108 for your **FREE**

MILKHOUSE PLAN KIT

Arrange scale model cutouts of bulk tanks, water heaters, wash sinks, etc., on graph sheet to fit your plan.

DAIRY EQUIPMENT COMPANY

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Manufacturers of KARI-KOOL Truck Tanks

A message to all owners of pull-type corn pickers . . .

A DOUBLE FREE OFFER YOU CAN'T AFFORD TO PASS UP!

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To save your corn and your time and to demonstrate today's finest 2-row mounted picker, your J. I. Case dealer will open one of your 40-acre fields with the new Case 425.

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NEW . . . . . 2-ROW CASE® 425 MOUNTED PICKER

*Based on 128 bushels of 80-bushel-per-acre corn at $1.20 per bushel.

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Your CASE® dealer takes the lead in corn picker safety and offers FREE . . . . a Cutter-Scraper-Cleaner

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Take advantage of this FREE DOUBLE OFFER . . . See or Call your Case dealer for a demonstration date today.

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☐ Crop-Way Purchase Plan

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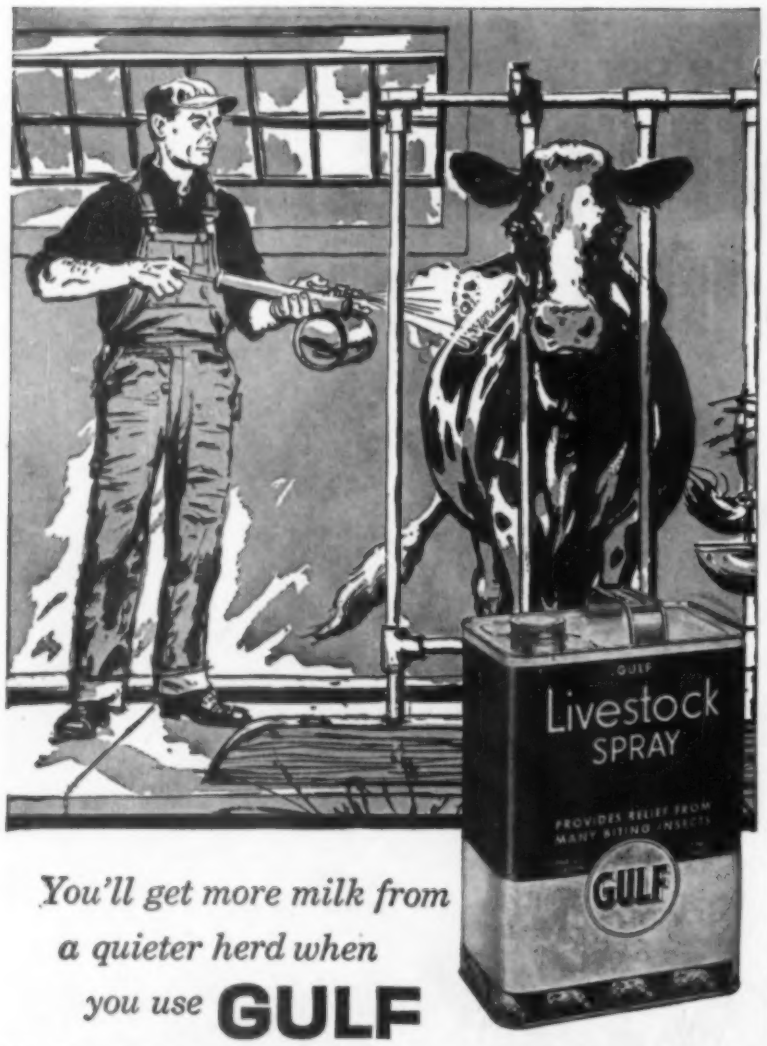

You'll get more milk from a quieter herd when you use **GULF LIVESTOCK SPRAY**

- **Easy to use . . . follow simple directions on container**
- **Guaranteed effective or your money back**
- **Amazing economy . . . protection for about 1½¢ a cow per day**

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HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
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Fort Atkinson, Wis.

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COVER PICTURE

As the show season gets underway once again, we are sure this scene could be duplicated hundreds of times. While we were unable to identify this boy, it would appear as though his heifer was better adjusted to being away from home than he was. It was obviously a long day in the show ring.

Thinking back to our own experiences on the tanbark trail, we are a bit envious of this happy time in the lives of 4-H and F.F.A. members. We just hope that the youngsters don't feel they have to show the grand champion in order to have a successful project. Everyone who does his best is a winner.

This is a Luoma Photo.

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Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

Washington Dairygrams

MILK FLOW TAPERS OFF IN EARLY SUMMER. MAY AND JUNE PRODUCTION DOWN 1 PER CENT FROM 1957. FIRST SIX MONTHS TOTAL 66,978 MILLION POUNDS COMPARED TO 67,014 MILLION SAME PERIOD LAST YEAR.

FARM LEGISLATION PROSPECTS DIM. AFTER HOUSE DEFEAT OF OMNIBUS BILL, SENATE DELAYED DEBATE ON BENSON-FARM BUREAU BILL WHICH CONTAINS NO DAIRY PROVISION. OPPONENTS PREPARE TO MAKE LONG FIGHT AGAINST BILL. WILL PUSH FOR DAIRY AMENDMENT. ADJOURNMENT NEAR. MAJOR FARM LEGISLATION WILL WAIT UNTIL NEXT JANUARY WHEN NEW CONGRESS CONVENES.

DAIRY CO-OP BARGAINING WOULD BE STRENGTHENED BY BILL BEFORE SENATE. WOULD PERMIT JOINT NEGOTIATION WITH ALL HANDLERS AT ONE TIME PROVIDING MORE DIRECT AND EFFICIENT BARGAINING. SENATE HAS PASSED BILL; HOUSE SCHEDULES HEARINGS.

NET FARM INCOME UP DURING FIRST SIX MONTHS OF 1958. AT ANNUAL RATE OF $13.3 BILLION, 22 PER CENT HIGHER THAN FOR SAME PERIOD IN 1957.

INDUSTRIAL USES FOR FARM PRODUCTS GETS BOOST. SENATE AGRICULTURE COMMITTEE APPROVED BILL. WOULD ESTABLISH AGRICULTURAL RESEARCH AND INDUSTRIAL ADMINISTRATION IN U.S.D.A. WILL HAVE BROAD POWER, SUPPLEMENTING SOME ALREADY AVAILABLE. ALSO SOME NEW POWERS DEALING WITH GRANTS, FELLOWSHIPS, SCHOLARSHIPS, AND INCENTIVES TO FARMERS AND INDUSTRY. STRONG SUPPORT FOR PROPOSAL.

SCHOOL LUNCH FUNDS BOOSTED BY $10 MILLION TO A TOTAL OF $93,600,000 FOR 1958-59 SCHOOL YEAR.

CROP ACREAGE HARVESTED IN 1958 EXPECTED TO BE SLIGHTLY LARGER THAN IN 1957.

★ ★ ★

In YOUR next issue!

YARDSTICKS FOR COMMERCIAL DAIRYMEN... If you want to improve your net income, this article should help. The yardsticks used to show the kind of job you are doing are: Roughage harvested per cow; milk sold per man; and power and machinery expense per cow.

PASTURES CAN BE PROFITABLE IF . . . you begin with good crop land and follow a periodic renovation program. Be sure to read this article that is loaded with helpful tips on how you can improve your pastures.

LOW-COST FARM BUILDINGS WITH TILT-UP CONCRETE . . . Here is a detailed explanation of a new method of construction that permits the erection of attractive concrete buildings at moderate cost.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

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Name_____ R. F. D._____

P. O._____ State_____

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3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

"We are more than pleased with our PAPEC 32A"

. . . says an Ohio Dairyman

The same man adds "Our Papec 32A Forage Harvester is easy to grease and is such a light and easy machine to manipulate in the field. We cut old Virginia corn that was thick and 15 ft. high. Some was down and the Papec did not clog at any time. Best of all the Papec was priced much below the next best harvester."

The re-sale value of a Papec Forage Harvester is high, too. Recently the owner of a Papec, equipped with row crop and direct cut attachments, decided to quit farming. His harvester had two years of hard use. Yet at auction it sold for a price that represented about half the normal depreciation on farm equipment.

See your Papec dealer now and arrange for a demonstration of the 1958 Papec "32A" Forage Harvester, and the new Papec Model 40 Crop Blower. Or send name on margin of ad for booklet giving complete information on both machines. It's FREE. PAPEC MACHINE COMPANY, Shortsville, N. Y.; 243 W. Merrill St., Indianapolis, Ind.; 2925 Chrysler Rd., Kansas City, Kan.; 18 N. Tyler Ave., Hopkins, Minn.

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FORAGE HARVESTERS
CROP BLOWERS • HAMMER MILLS
HAY CHOPPER-SILO FILLERS
ENSILAGE CUTTERS • FEED MIXERS
FIELD SPRAYERS

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Fighting rural fires

As a farmer serving as a rural volunteer fireman in our locality, I can see a need for an article to acquaint farmers with the problems of fighting rural fires. I think they should be encouraged to check with their local fire departments to:

1. Get acquainted with the department and its equipment.
2. Get a better idea of their methods of fighting rural fires.
3. Obtain suggestions for building roads, etc. to the water sources on the farm (ponds, wells, cisterns, ditches, creeks, etc.).
4. Plan barnyard fencing so animals can be routed from burning farm buildings.
5. Other pre-fire planning.

Then there's the problem of practicing farm fire prevention; knowing where to hang fire extinguishers and the type to install.

We must keep in mind most rural fire trucks only carry 500 to 750 gallons of water and that pumpers can pump from farm water sources if the truck can drive within 15 feet of the water's edge. Some departments also carry portable auxiliary pumps and/or jets to pump from these extra water supplies.

I think an article in your magazine would encourage farmers to do a little pre-fire planning and do their utmost to make farm water sources available to the fire department's equipment. Such action would reduce rural fire losses.

Hoping this idea is worth your consideration.

Washington BOB DAVIDSON

An excellent suggestion. We are at work now getting information together for future articles. Eds.

Would rather raise them

Mr. Walker of New Hampshire "vigorously objects" to my letter regarding the genetics of breeding dairy cattle. He poses the question, "What would Mr. Peterson do to find 400-pound cows if everybody had given up trying to improve them?"

The answer to that is that Mr. Peterson would like to be able to raise 400-pound cows. He is not interested in "finding them." He would like to be able to find a bull, which when mated to the 400- and 500-pound cows he now owns would at least maintain or improve that production.

Mr. Walker suggests that the way to happiness is to make others happy. It is not clear how one who experiences a succession of failures in his chosen business is going to be terribly happy or will be able to make anyone else happy. Those who have failed in the art of breeding good cattle would perhaps have achieved something of value if they or anyone else could determine WHY they failed.

Mr. Walker refers to the "great breeders" as men having an innate sense of the proper matings and a sort of spiritual guidance in their efforts. Their "innate sense" together with the cooperation of the spirits does not prevent them from having many failures. We do not hear about their failures except from the unfortunates who purchase them. They in turn apply the Golden Rule with some slight alterations. That is to say, they do unto others as they have been done unto. Thus genetic mediocrity of such animals is perpetuated indefinitely.

If it is true that one must seek spiritual guidance in the breeding of cattle, the situation is even worse than I had thought!

Wisconsin VERNON F. PETERSON

Neglected human erosion

Too long have we preached money efficiency as the sole criterion by which to judge farm life. Too long have we neglected the human values and the spiritual values of sharing in holy partnership with God his continuing work of creation as he uses our hands in the soil to bring forth new crops and new flocks and herds each year.

In attempting to "help" the "marginal" farmer off the farm and into the urban ranks of the unemployed, our planners have neglected the deadly human erosion that is eating away at the very foundation stone of our nation's excellence, its rural population.

Iowa DANA C. JENNINGS

Farm surplus "solution"

Both flexible and full parity are unworkable. They create high food costs, high feed costs for cattlemen, and hunger in a land of plenty; then cost the government billions of dollars, increase income taxes, and make enemies for us by dumping grain on foreign markets.

Here is my suggestion as to the solution to the farm surplus problem: Give every farmer who makes most of his living farming in the U. S. the following:

1. Full parity for a specified amount of grain marketed; say, 1,000 bushels, plus 10 per cent of all grain marketed over 1,000 bushels. Example: If a farmer markets 1,600 bushels of grain at the market price of, say, $1, he will receive (if parity is $2 per bushel), $1,600 plus $1 per bushel from the government on 1,160 bushels, making a total of $2,760.

2. Tax every bushel of grain sold on the U. S. markets, both foreign and domestic, 4 cents per bushel. The federal government will match the amount so raised by this tax. This fund will be used to finance the plan.

3. As the fund increases, the parity could be changed to cover a larger amount of the marketed grain, but no farmer should receive parity on more than 90 per cent of the grain he sells.

The same benefits and tax could apply on stock raised and sold on the market for meat by the farmer. Thus, a farmer could get full parity on a specified amount of both grain and meat.

This program would be financially sound, cost the government less to operate, benefit the small as well as large producers, and result in cheaper food for everyone.

The farmer could put in his claim for parity with his income tax report.

Montana STEPHEN E. SANDE

For peaceful life

Ours is a rioting, quick-tempered, fast-moving, quarreling world. This universe also consumes huge quantities of coffee.

The best of first aid, health, or doctor books state that coffee is a stimulant. Many have the opinion that whether or not one drinks coffee is entirely a personal matter. Is it? So is getting drunk, firing a gun, and things of that nature but often the aftereffects of those things are drastically terrific.

If a great many humans are stimulated and their bursts of energy are not used in doing good or at least so they are not harmful to others, how can we help having conditions as they are?

No one ever asked to be born so why not less stimulation and more enjoying a pleasant, peaceful life?

Minnesota RUTH BOTCHER

Extend self-help

There is a lot of room for improvement in this so-called self-help marketing program. While the present bill is some-40 pages long, why not add a few pages and have a complete program?

Uniform quality regulations, a uniform advertising fee, money for basic and applied research, and money to fight unfair advertising. Add these and you would have a more workable program.

If all producers are to benefit from the self-help program, then all should contribute to developing the market and providing a quality product.

I should like to see the following regulations added to the bill:

1. Five cents for advertising.
2. Three cents for basic and applied research.
3. One cent for policing the program and to fight unfair advertising.
4. Uniform sanitary regulations.
5. Bacteria not to exceed 50,000 raw and 1,000 pasteurized.

Farmers will do these things voluntarily but to protect the majority from the few we need good, solid regulations.

Vermont H. CARLTON FERGUSON

Down with tariffs

It's always amusing to see and hear our rugged individualists bemoan "government interference." They might be more convincing if one was not old enough to remember their far-from-chivalrous performance in grabbing for handholds during the early days of the Roosevelt administration.

Furthermore, if they are really sincere in wanting the government out, how about the protective tariff? Who does it benefit? As a dairyman, I would be greatly benefited by lower costs and expanded markets if all tariffs were gradually eliminated.

I can't conceive of the prices rising the way they did in our economy the last five or six years if the shedders of crocodile tears had been firm in lowering tariffs across the board during this time.

Maybe our pensioners and people on fixed incomes would have been a larger factor in our markets if such a policy had been adopted. But then our ruggest individualist from New England might have clipped a smaller coupon.

Labor and industry are both protected in their bickerings by this high tariff wall. Who pays the bill? The man on fixed income who sees his dollar's value disappear, and the farmer who cannot control his surplus production.

I'd like to be able to buy some of the cheap foreign goods at cheap foreign prices, and then I might be able to sell my product at prices which the "cheap foreigners" could afford to pay.

Washington
S. H. VAN WOUDENBERG

A place on our farm

Just as many of your other readers, I also enjoy your magazine and am amused over the trench silo controversy. However, I feel I must speak in their defense as I believe the trench silo definitely has a place on farms with large herds, especially in loose-housing setups where feeding is done outside.

I feed 50 head of cattle with a 7-foot-wide snow bucket in outside bunks. I am well satisfied with the two trenches I've had for several years.

Location is an important factor. Ours have cement floors and are adjacent to a cemented feed lot.

We drive over the silage while unloading the wagons of chopped feed, then pack and level for several hours, and cover immediately with plastic. This is weighted or it would blow off.

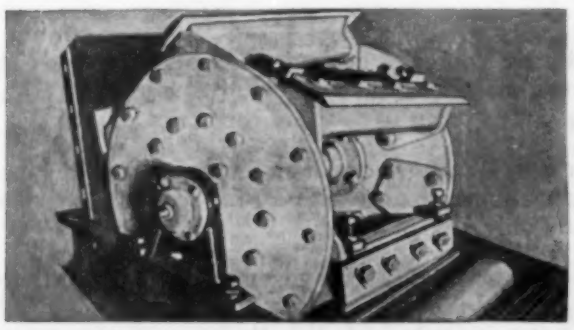
The cost of my trenches, cemented out, is about one-fourth the cost per ton of capacity of an upright. When empty, they are even useful as extra cemented feed lots or calf pens.

Minnesota DON VON LEHE

2-row corn attachment saves trips, leaves field clean.

Like a hot knife through butter!

New Holland's "800" has extra power . . . gets through your toughest chopping jobs on time!



Micro-Shear Cutter head gives faster, cleaner chopping. Straight knives of hardened steel are mounted at an angle on a cylinder . . . cut material cleanly in forward downward motion . . . blow chopped material through adjustable spout. Cutting lengths range from 7/32" to 2¼". Built-in knife-sharpener sharpens knives without removal. No guesswork . . . no tools needed. Takes just a few minutes. Cutter head is shear-bolt protected.

You can harvest up to 45 tons an hour . . . chop enough silage in 2½ hours to fill a 100-ton silo . . . chop enough in a single day to feed 62 head of cattle all winter long! That's the capacity of New Holland's "800" Forage Harvester!

You'll probably never need to call upon your mighty "800" to deliver its top output. But that extraordinary capacity is your assurance of getting even the toughest chopping jobs done on time. Hour after hour, through matted tangles of wind-flattened corn or wet legumes, your "800" is built to take it—and ask for more!

What's more, you get better quality silage and use less power. Direct-line delivery of crop from attachment to wagon means that the material travels a shorter distance.

Wide choice of attachments: 1- or 2-row corn head, 6- or 8-foot direct cut, and 6-foot windrow. Roller chain is used exclusively throughout the "800" and attachments. Choice of power: 69 h.p. Continental engine or P.T.O.

For a demonstration, get in touch with your New Holland dealer. Send coupon below for complete details.

NH NEW HOLLAND

"First in Grassland Farming"

NEW HOLLAND MACHINE COMPANY
808 Oak Street, New Holland, Pa.
Please send me free catalog on the Model "800" Forage Harvester.

Name:_____

Address:_____

City:_____ State:_____

New '58 Dodge Power Giants do a handsome job . . . are 4-way leaders of the low-priced 3

Here's a thoroughbred you needn't gentle . . . a new kind of truck that's built for action and looks it. And today's all-new Dodge *Power Giants* for '58 are even easier on your pocketbook than they are on your eyes. In fact, they lead the low-priced three in all four big ways that mean most to farmers.

First in Styling! You get the look of tomorrow in your new Dodge *Power Giant*. From massive chrome grille and striking dual headlights to smart new luxury cab interiors, these trucks are styled to stay new for years.

First in Power! You get up to 24% more work-saving power with a new '58 Dodge. This extra power reserve reduces engine wear and repairs.

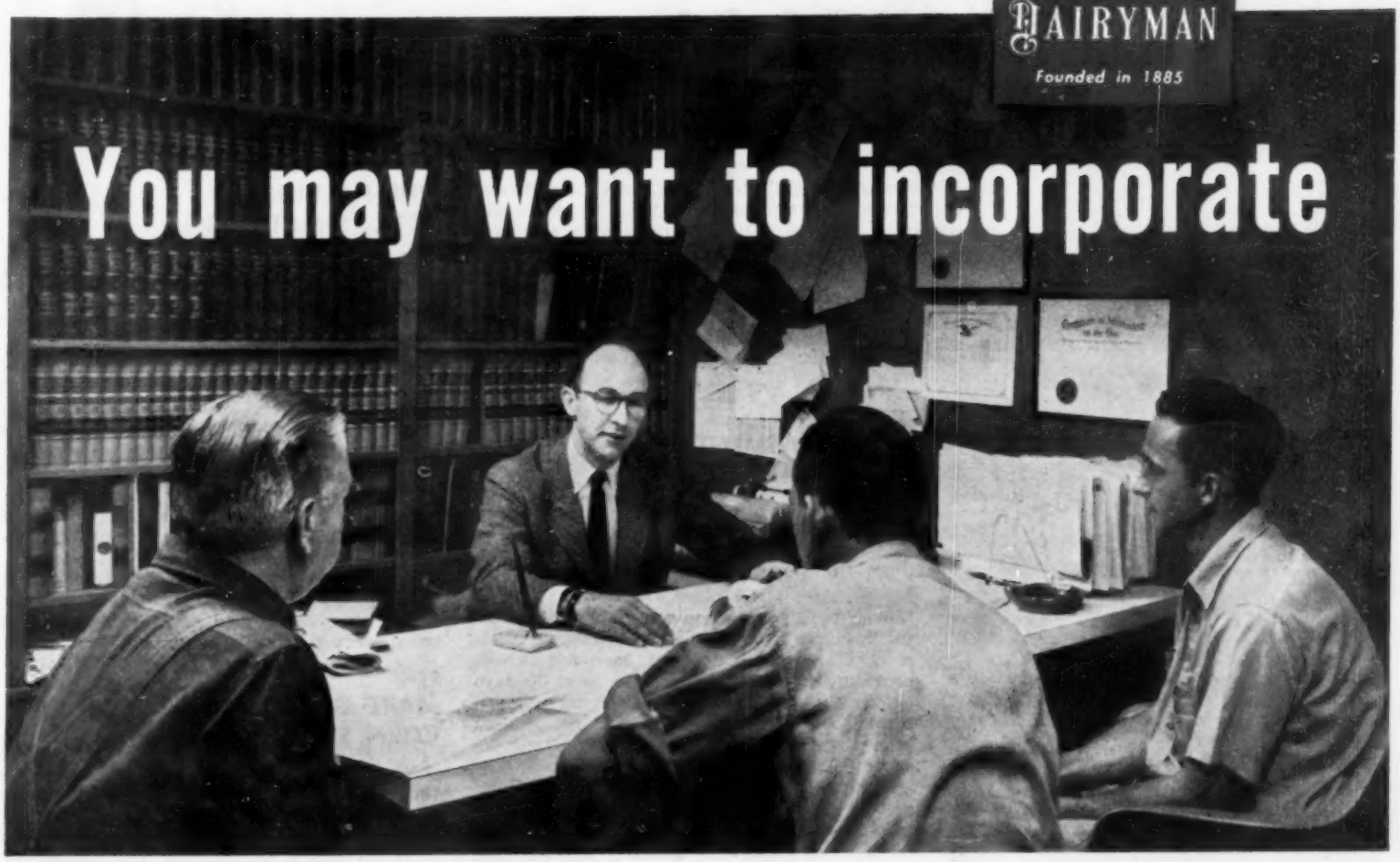
First in Payload! You get a bonus in load-carrying capacity no competitive make can offer. Unique *Power Giant* construction lets you haul up to ⅓ more each trip.

First in Economy! You get dollar-saving mileage and long-range, low-cost engine upkeep with Power-Dome V-8 engine design . . . and only Dodge has it.

Remember . . . handsome is as handsome does . . . and these all-new Dodge *Power Giants* are built to do a man-sized job handsomely, year in, year out. What's more, *they're priced with the lowest!* Why not see and drive your choice of these rugged new trucks—V-8 or Six—at your Dodge dealer's soon?

DODGE *Power Giants*

HOARD'S DAIRYMAN
Founded in 1885



You may want to incorporate

If your investment is larger than $100,000, or if there are three or more families involved, it may pay you to consider incorporation.

by Robert S. Smith

MORE farm families are interested in incorporating the business than ever before. The closed or family corporation has been used by some farm families for many years. The rise in interest is due largely to the increasing number of large farms owned and operated by one family. A $100,000 farm business is not uncommon nowadays. Farming on this scale brings increasing responsibilities and burdens to the owners.

More complex tax problems and increased liability of the owners to business associates, employees, and the public are of genuine concern. Sharing ownership of the farm property among family members and getting the ownership transferred to the next generation becomes more difficult as the size of business increases.

Owners of many large farms are wondering if incorporation doesn't offer a solution for these problems. A few have tried it, with varying degrees of success.

The farm-owning family can choose one of three alternative methods of organizing the business; it may be operated as an individual proprietorship, as a partnership, or as a corporation.

The vast majority, of course, choose to operate as individual proprietorships. In the Northeast, about one commercial dairy farm in eight is operated as a partnership. The number of family farm corporations is very small, certainly less than 1 per cent of all commercial farms.

Consideration of the corporation often arises when a son or son-in-law is to be taken into the business. If additional family members are to be added to the "farm staff," the corporation idea is very likely to get even more consideration than before.

In a corporation, the ownership is more flexible. When the farm is incorporated, the ownership is represented as shares of stock. These stock shares can be distributed among family members in relation to their contributions. This provides a businesslike way of determining the share of ownership of each family member.

Stocks easy to divide . . .

It is much easier to divide shares of stock among several family members than to divide land, buildings, and livestock. In this respect, the corporation has a real advantage over a partnership.

A family I'll call the Haines family will illustrate this point. Jim and Art, brothers about 45, now operate a dairy-cash crop farm in Western New York, with a capital investment of about $150,000. Jim has two sons and a daughter; Art has a son and a daughter. The farm is now operated as a partnership.

Jim and Art would like to take Jim's oldest boy, Ray, into the partnership, but they don't want to help Ray more than other sons or sons-in-law who may want to come into the business later. They're thinking of incorporating. In this way, they could allow Ray to become a small stockholder now, and gradually transfer more stock to him as his contributions to the business increase.

When the others come along, they would be brought into the business gradually, too. Members of the younger generation would be encouraged to take part of their earnings in stock ownership. This would provide a businesslike way of saving for future ownership.

The corporation thus does provide a simple way of sharing ownership among any number of family members — a real advantage.

Limited personal liability . . .

The personal liability of the owners for business losses and liabilities can be definitely limited by forming a corporation. When the owners have investments, savings, and other nonfarm property in large amounts, this insulation from personal liability may be a real incentive to incorporate.

In a partnership, each partner is liable for the acts of the other, and this liability is not limited to his investment in the farm business. It extends to all of his property.

Legal minds are inclined to make much of this unlimited liability, and to discourage farm partnerships because of it. In practice, it can be a source of danger, but very seldom causes trouble. Partners and individual proprietors can greatly reduce if not eliminate this hazard with a good liability insurance program.

Most farm families have their assets largely in farm property. When the farm is incorporated, there may very well be no significant assets outside the corporation left to protect.

In Joe Green's case (that isn't his real name) this is not true. Joe is in his early 60's. He has been very successful in his farming operations. He is in partnership with five sons on four different dairy farms. Joe's holdings in these five farms exceed $200,000. In addition, Joe holds mortgages on several other farms, owns a large block of bank stock, and has numerous other investments. He estimates that if he were to die this year, he would have a net estate in excess of $400,000.

Joe is concerned about how hard he could be hit if he or one of his sons were to be sued by a hired man or a member of the public involved in a farm accident. The protection of limited personal liability may sway Joe toward a family corporation.

The farm owner who incorporates his farm becomes majority *(Turn to page 772)*

The author is an agricultural economist at Cornell University.

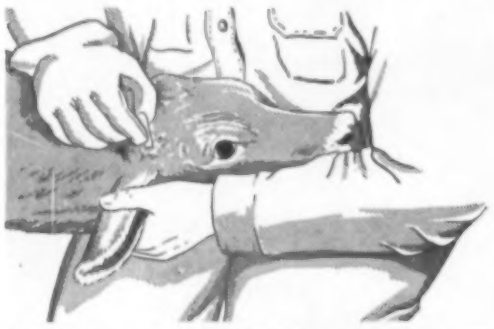
Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

BEST TO DEHORN EARLY

If cattle are to be dehorned eventually, Rutgers dairy specialists say it is best to do the job while they are calves.

The old standby for dehorning calves from 1 to 3 weeks old is the caustic potash stick.



Secure the young calf tightly and use scissors to clip hair away from the horn buttons. Wear gloves to protect your hands from the burning effects of the caustic.

Apply the stick to the horn button with a firm rotary motion until blood just starts to appear. After both horn buttons have been treated, put a circle of vaseline around them to keep the caustic from running down into the calf's eyes. Keep the treated animal tied for a few hours to prevent scratching and rubbing of the head.

Many commercial preparations also are available in liquid and paste form. They are easy to apply and dry quickly into a waterproof covering so that the animal can be turned loose in a short time.

The electric dehorner is very efficient for use on a calf more than a month old, provided the plate is big enough to fit down over the horn so that it burns a ring around the base and down into the skull. There also are various types of metal dehorners that cut under or scoop out the horn.

Some dairymen prefer to wait until cattle are yearling heifers when the horns are sawed off. Their reasoning is that they think they can do a better job of shaping the animal's head when horns are removed at that age.

The important thing is not to put off the job until cows have freshened. Regardless of the time of year the job is done, cattle usually drop in production after being dehorned.

FOR BETTER A. B. RESULTS

A University of Minnesota study has shown that heavy feeding and more frequent semen collection can increase the efficiency of dairy bulls used for artificial breeding.

Two sets of mature, identical twin bulls were used in a study in which high and low nutrition levels as well as two- and four-times-a-week semen collections were compared.

The "low nutrition" rate was based on 70 per cent of Morrison's standard requirement for mature bulls, the "high nutrition" rate was 130 per cent. The tests covered 60 weeks.

In most cases, both high nutrition and more frequent collection increased the total amount of semen produced per week, as well as the number of sperm cells.

For example, low nutrition and two collections per week resulted in 6.6 milliliters of semen, while high nutrition and two collections brought 9.2 milliliters. Low nutrition and four collections resulted in 12.9 milliliters, compared to 16.8 milliliters from high nutrition and four collections per week.

The quality of the semen was not affected by the different feeding rates or number of collections in any of the tests.

The rations contained the same ingredients for all bulls. The only difference was in total feed intake.

NEW TREATMENT FOR CATTLE GRUBS

Two new chemicals have been recommended for controlling cattle grubs and both will be available this year according to reports from Wisconsin and Ohio.

The names are Trolene and Co-ral. Neither should be given to milking dairy cattle, although there is no restriction on Trolene treatment of dairy heifers that have not calved, providing treatment is made at least 60 days before their first calving. Even when given to beef animals, the drugs should not be used later than 60 days before marketing time because of the danger of harmful residues.

Treatment should be made in the late summer or early fall, so the grubs are killed before they damage the back meat and hide of cattle. Tests also have shown weight gain advantages when beef cattle were treated with either of these insecticides.

Trolene is administered as a bolus by means of a bolling gun. Give animals access to feed and water before and after treatment. Co-ral is sprayed on beef cattle that are at least 3 months old. It is available as a 25 per cent wettable powder and should be applied as a spray. Be sure to wet the skin thoroughly, not just the hair. In addition to grubs, Co-ral also is effective against screw worms, horn flies, ticks, and lice.

RYE MAKES GOOD PASTURE

Rye has become increasingly popular as a pasture crop. Balboa rye makes a quicker crop than previously used varieties and doesn't give an off-flavor to the milk.

Another reason for rye's increasing use is that farmers are turning to new methods of sowing which makes it possible to seed rye where it was never able to seed before.

If sown in late August, rye provides an excellent fall and early spring pasture. This provides a rest for the alfalfa pasture which will come on better in the spring. Besides, it also serves as a winter cover crop preventing soil erosion from idle fields.

Rye can be plowed under as a green manure in the spring or can be put up as a grass silage crop. In Michigan, it is recommended that rye be sown about the middle of August at the rate of 4 to 6 pecks per acre. It responds very well to a good treatment of fertilizer like all other crops.

The soil should be tested before application. Usually, an application of 300 to 400 pounds of 3-12-12 or similar high analysis fertilizer does an excellent job in promoting plant growth in the fall.

To prevent spread of disease, isolate newly-arrived cattle for at least 30 days, suggests a University of Illinois veterinarian.

WHEN NAILING METAL SHEATHING

Most of the difficulty with nails pulling loose from metal sheathing can be eliminated by using screw type or ring shank nails nailed into 2-inch lumber.

Sheet metal should not be nailed to 1-inch boards. Nailing it to 2-inch material will eliminate most of the trouble.

Where sheet metal sheathing is applied over a solid lumber sheathing, keep as many of the joints as possible over rafters or other 2-inch framing material. It is recommended that 2½-inch nails be used instead of the usual 1¾-inch nails. This extra length of nails will go through the 1-inch board sheathing and anchor into the 2-inch rafters.

Where sheathing will be applied to open livestock buildings, nail the joints between sheets on every second ridge instead of the usual every fourth ridge.

MAKE GOOD CORN SILAGE

North Dakota research workers advise cutting silage into fine pieces and packing it as tightly as possible. The best length cut for packing is ¼ to ½ inch. Anything longer than ¾ of an inch is too long for best results.

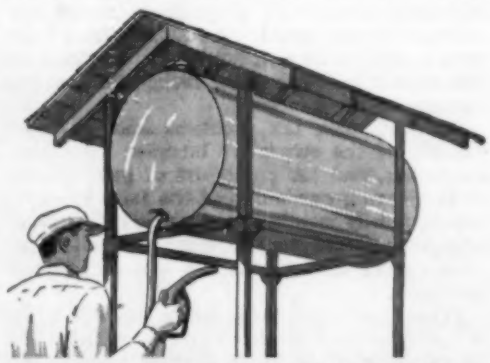
When using a trench or aboveground bunker type silo, a heavy-wheel tractor is best for packing. Packing should be continuous when the silo is being filled and continued several days after filling is completed.

When corn contains about 70 per cent moisture it will pack well and make satisfactory silage. If the crop has been frozen, or if it is too dry, water should be added as the silo is being filled.

SAVE GAS WITH SHADE

A Pennsylvania study revealed that gasoline losses from six 50-gallon vented drums amounted to about 30 gallons a month.

In this test an aboveground vertical tank lost 11 gallons through evaporation while an underground tank lost 7 gallons during the month. The least loss occurred in an above-



ground tank that was vented to maintain a pressure of 3 pounds per square inch.

The tests further showed that complete shading of the tank cut evaporation losses as much as 6 per cent. Tank color also is important. An all-red 300-gallon storage tank lost about 3 gallons more from evaporation than a white tank of the same size.

As a fire prevention measure, always store gasoline outside and away from buildings.

What do BULL PROOFS and INDEXES mean to you?

You must know the herds where records were made and other important facts before passing judgment.

by C. W. Nibler

EVERY month the Agricultural Research Service (U.S.D.A.) publishes a list of sires proven in dairy herd improvement associations. Production records used in proving D.H.I.A. sires consist of 305-day lactation records, standardized to a mature equivalent twice-a-day milking basis; generally, shown as 305 M. E. 2x records.

(Example: A 2x, 305-day record of 8,840 pounds milk and 327 pounds butterfat, made by a Holstein that was 2 years, 5 months when she freshened is multiplied by 1.25 and thus, becomes a 305-day M. E. 2x record of 11,050 pounds of milk and 409 pounds of butterfat.)

Bull proofs are simply comparisons between the production of daughters and dams. Proofs may show an increase, a decrease, or no change. The proofs are designated in four different ways:

Preliminary proved sire — A comparison of milk and butterfat production of 5 to 9 daughters with their dams. Daughters are result of natural services in one or more herds.

Below is an example of a preliminary proof:

GUERNSEY—	Animals Number	Records Number avg'd.	Milk Lbs. avg.	Test %	Fat Lbs. avg.
MAJESTY #470000, born 4-7-50; sire #448000; dam, #1230000; used by —John Doe, Seward, Nebraska. Difference (3-2-3).	12 daus.	17	8,135	4.8	388
	9 daus.	9	8,274	4.9	403
	9 dams	16	8,331	5.0	420
			−57	−.1	−17

The three numbers after the word "difference" refer to the number of daughters that were above their dams in milk production, fat percentage and butterfat production, respectively. Thus, of "Majesty's" nine daughters, three were better than their dams in milk production, two had a higher fat percentage, and three produced more fat than their dams.

Proved sire — A comparison of milk and butterfat production of 10 or more daughters with their dams. All daughters are the result of natural services in one or more herds. Below is an example of a proved sire:

HOLSTEIN—	Animals Number	Records Number avg'd.	Milk Lbs. avg.	Test %	Fat Lbs. avg.
KARMORE #1085000; born 9-16-48; sire, #887-000; dam, #2610000; used by John Doe, Lincoln, Nebraska. Difference (12-15-13).	19 daus.	20	12,104	3.5	424
	17 daus.	18	12,088	3.5	423
	17 dams	26	12,498	3.3	410
			−410	+.2	+13

Preliminary A.B. proved sire — A comparison of milk and butterfat production for 10 to 24 artificially sired daughters with their dams (A.B. stands for artificial breeding). Below is an example of a Preliminary A.B. proof:

HOLSTEIN—	Animals Number	Records Number avg'd.	Milk Lbs. avg.	Test %	Fat Lbs. avg.
(A.B. Preliminary Proof) CRAFTSMAN #1090000, born 9-26-49; sire #990-000; dam, #2278000; used by Breeders' Association. Difference (6-5-7).	22 daus.	31	13,438	3.8	513
	19 A.B. daus.	25	13,512	3.8	514
	19 dams	24	12,703	3.7	470
			+809	+.1	+44

A.B. proved sire — A comparison of milk and butterfat production of 25 or more artificially sired daughters with their dams. Below is an example of an A.B. proved sire:

HOLSTEIN—	Animals Number	Records Number avg'd.	Milk Lbs. avg.	Test %	Fat Lbs. avg.
PRIDE #980000; born 2-27-46; (A.B. proof) dam, #2130000; used by — Breeders' Association. Difference (12-22-17).	29 A.B. daus.	32	11,624	3.8	442
	28 dams	74	11,394	3.5	403
			+230	+.3	+39

Many times after a natural proof has been published for a bull, an A.B. proof will be published. This proof is published after his A.B. sired daughters have completed their records. This latter proof may show no change or be higher or lower than the original proof.

While sire proofs are intended to indicate the level of production which the sire will transmit to his daughters, the proofs are influenced by factors other than the transmitting ability of sire. Most important factors are changes in feeding and management.

Using selected daughters can also influence a sire proof. For this reason, all daughters must be included. Furthermore, all the records of all the daughters and all the records of their dams must be averaged and included.

Factors to consider in evaluating sire proofs:

1. **Level of production.** It is easier to increase production on low-producing cows than on high-producing cows.

2. **Number of daughter-dam comparisons.** If there has been no selection, there probably will be little change after 20 to 25 comparisons.

3. **Range in production.** If the daughters of a bull are highly uniform, the producing ability of future offspring can be accurately determined on the basis of the older sisters that have records. Where there is a great variability, there is a tendency to place too much emphasis on the daughters with the higher production level.

4. **Changes in environment.** A sire proof made in one herd will not be reliable if feeding and management practices differ from year to year. By the same token, a sire proof made in a single herd may not be any indication of what this same sire will do in another herd with feeding and management practices different from the original herd.

5. **Natural or artificial proof.** Since artificially sired daughters usually will be found in many herds, there is a tendency for differences in environment, feeding, and management to cancel out.

Studies of sire proofs in Nebraska and elsewhere have indicated that bulls which increase production at one level of production will also, generally, increase production at other levels of production. However, the largest increase will take place in herds under good management, which are fed according to recommended feeding standards.

Bull proofs are also published by some of the breed associations, based upon Herd Improvement Registry Production Testing Programs.

Various indexes developed . . .

Bull indexes have been developed in order to have a single figure which indicates a sire's transmitting ability for milk and butterfat production. It is a figure which is supposed to indicate what the sire would produce, if he were a cow. Since bulls do not produce milk, the index has to be computed indirectly.

The basis for computing an index is that a daughter receives one-half of her inheritance from her sire and one-half from her dam. Bull indexes, like bull proofs, are based on 305-day M.E. 2x records. Information follows on different indexes.

Equal Parent Index (E. P. I.). This could be a perfectly valid index, if one knew exactly the production inheritance of both dams and daughters. However, one never knows exactly the hereditary make-up of a cow. Since the actual records are the results of the combined effects of inheritance and environment (feeding and management), the same factors affecting the sire proofs will also affect the Equal Parent Index. Thus, a very high or low index is not apt to be too realistic.

It is figured as follows:

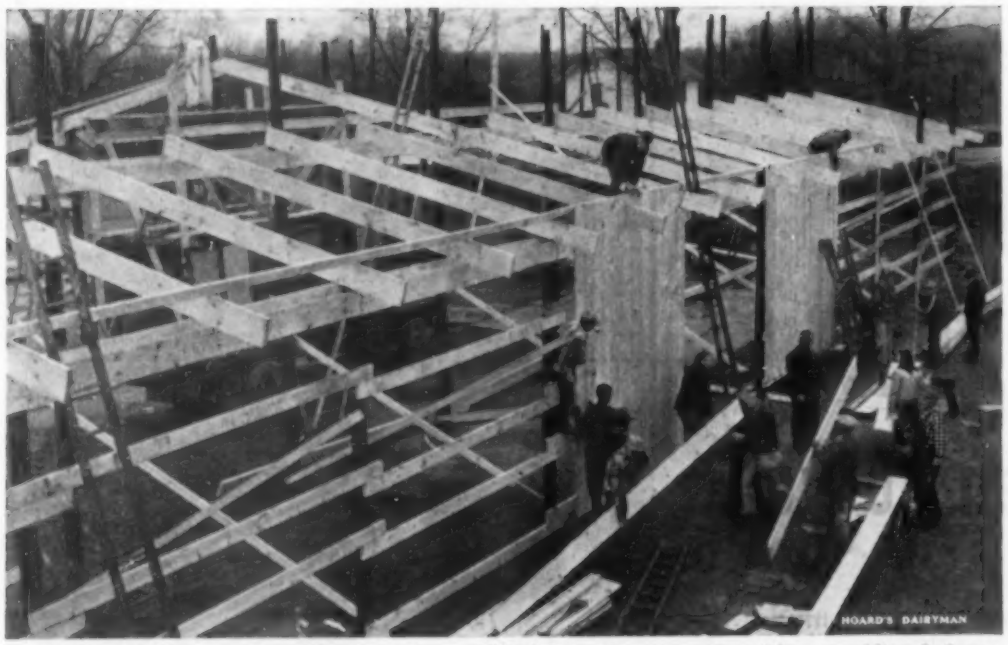
Sire Inheritance = 2x daughters' inheritance − dams' inheritance

EXAMPLE: Bull (Pride)

Daughters	11,624 milk x 2 = 23,248	442 fat x 2 = 884
Dams	11,394	403
Sire's Equal Parent Index	11,854 milk	481 fat

American Index. This takes into consideration changes in percentage of butterfat between daughters and *(Turn to page 781)*

The author is extension dairyman at the University of Nebraska.



BARN RAISING on Norm Thompson farm. Neighboring farmers are putting on siding before all rafters are in place. Everyone has a certain job; work proceeds in an orderly fashion.

HAPPY OWNERS, Mr. and Mrs. Judson Page marvel at accomplishments of first day's work.

Revive an old custom . . . have a barn raising

Two barns had burned. Here is how these farmers asked for help and in two days had new barns. Their experiences may help you.

by Ivan W. Bigalow

WHAT would you do if your dairy barn burned and you had to replace it in a hurry at today's sky-high construction costs? Dairy farmers have answered this by reviving the old custom of barn raisings where neighbors pitch in to help build a barn. Not only does a farmer get a new barn, but the neighbors gain experience and the satisfaction of doing a good deed.

A barn raising greatly reduces construction costs due to the volunteer labor contributed. Pole construction reduces material costs and its simplicity makes it possible for farmers to build a barn in a short time.

The workers have gained first-hand knowledge of construction by actually doing the job. Farmers who have helped on a pole barn raising gain confidence to build a tool shed or corn crib on their farm.

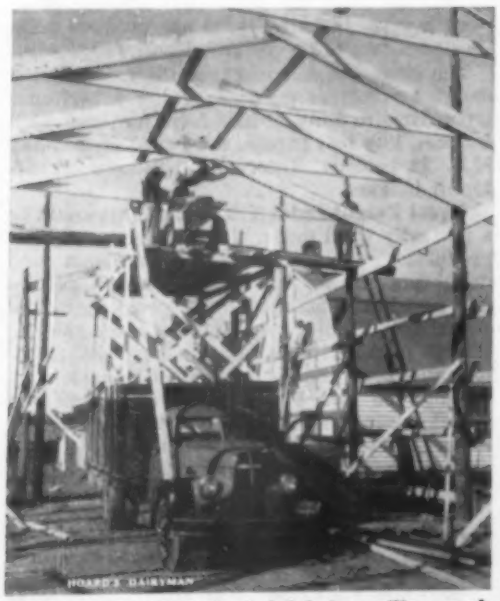
Extension workers consider barn raisings an ideal demonstration method. The county agricultural agent, along with the extension engineer and extension dairyman work hand in hand to organize and publicize a barn raising in the area.

The success of a barn raising is dependent on the preparation prior to the actual date. In these cases, the county agent arranged for newspaper, TV, and radio coverage. He had many small details of arrangement with the farmer. The extension engineer helped figure materials, planned use of labor and acted as one of the supervisors during the raising.

The farmer must spend several days before the day in arranging for materials, grading the site, and other details. Materials must be ordered well in advance of the building date since some materials require time for delivery. Nothing could be more demoralizing than to have men ready to work, and lack materials to do the job.

Even the extension dairyman may work closely with the dairy committee in getting some of the actual work *(Turn to page 776)*

The author is an agricultural consultant for the C. H. Hood Foundation, Boston.



TRUCK STAGING is helpful in nailing peak rafters in place on 65- by 43-foot feeder barn. This barn raising took place on Leon Speed farm after original building was struck by lightning.

FAMOUS MAINE MENU consisting of beanhole beans, brown bread, milk, coffee, ice cream was furnished and served by Grange women. Some 55 men were fed both days of barn raising.

Why you should use MORE LIME

Maintain a pH of 6.5 to 7.0 for the entire plow layer. Lime applied well in advance of seeding provides greatest benefits.

by James H. Eakin

APPLYING LIME on sod to be plowed next year for corn and the following year for small grain. By the time grain is seeded to legumes, the acid condition will be corrected.

THERE is nothing more basic or important on the average farm than its liming program. Over a period of years, it can make or break a farmer. It can mean the difference between a full and satisfactory life, or a life of frustration and failure. Two tons of limestone per acre, applied 28 years ago on a typical 80-acre farm could have made or lost as much as $69,600.

The unvarnished truth is that lime is so basic there is a tendency to ignore its absolute necessity. Farmer conversations often involve the merits of Holstein cows versus Guernseys, or the advantages of Vernal over Ranger alfalfa, none of which, including the cows, will do well on acid soils.

Prosperous farmers are using their full quota of lime. A few are using more than they should, but there are many farmers using none at all or entirely too little. Why the second group? Basically they do not understand how adequate liming can help their farming program. The majority do not understand because they have never fully comprehended the "lime takes time" part of their soil management.

Gradual change in soil . . .

After liming, the soil is gradually changed from a hydrogen complex to a calcium complex. The toxic compounds are slowly rendered insoluble and the existing microbial population is slowly changed to a lime-loving type. All this takes time and many farmers are not willing to wait.

They pay dearly for their short-sightedness in exhausting the available fertility of their soil. It is only by education and demonstration that the results of research can be brought to this group.

The expression "soil acidity" implies a multitude of conditions and does not mean the same thing for all soils. In systems as complex as soils, it is difficult to single out one quality and ascribe to it the good or ill effects of acid soil conditions.

Thus, when attempting to explain the why and how of liming, it is easy to get tangled in a web of technical expressions and explanations, and end up leaving everyone in the dark. As far as possible, and as accurately as possible, the lime story should be put into rather simple terms and explanation.

In spite of all that has been written on soil acidity and its correction, a knowledge of three basic principles of liming will answer most questions.

The first step is to have the soil tested. The next step is to apply all the lime that is recommended, not just part of it.

On most soils, it is almost as easy to maintain the lime status of an acid soil as to maintain the lime status of a well-limed soil. Apply 1 ton per acre of limestone each 4 or 5 years on a soil with a pH of 5.5 (too acid) and it will still be about pH 5.5 in 20 years from now.

On the other hand, apply a couple extra tons per acre in the beginning to move up the pH to 6.5 to 7.0 (well limed), and this desirable pH is almost as easily maintained with the same amount of lime as the acid soil. Don't be caught maintaining an acid soil when you think a ton of lime every 4 or 5 years is doing a good job.

This first principle may not seem important, but the table shows what a tremendous effect it can have on farm income over a period of years. The difference in pH 5.5 and 6.8 might have been the difference of 2 tons of limestone per acre 28 years ago. One farmer maintained his pH at 5.5; the other farmer used about the same amount of maintenance lime, but he was at pH 6.8.

Note the 28-year contrasting total gross income comes from the same crop rotation operated at pH 5.5 and at pH 6.8.

	pH	Avg. yield	Total gross income per acre for 28 years
Corn	5.5	64 bu.	$497.28
Oats	5.5	58 bu.	251.72
Hay	5.5	2,500 lbs.	177.24
Hay	5.5	2,500 lbs.	177.24
		TOTAL	$1,103.48
Corn	6.8	80 bu.	$721.60
Oats	6.8	60 bu.	260.40
Hay	6.8	7,000 lbs.	496.37
Hay	6.8	7,000 lbs.	496.37
		TOTAL	$1,974.74

$1,974.74 at pH 6.8
1,103.48 at pH 5.5

$ 871.26 difference of total gross income per acre for 28 years in favor of pH 6.8

Thus, for an 80-acre farm operated at pH 5.5 for 28 years, this would mean a loss of $69,600 total gross income, using actual prices of hay and grain for this 28-year period.

The most critical spot in a crop rotation is the day the farmer seeds down to a hay or pasture crop which he plans to hold several years. If he does not obtain a good "catch" of legumes and grass, his rotation is crippled and becomes unprofitable.

On acid soils, lime must be placed into the soil well in advance of the time the field is "seeded down" to an acid-sensitive hay or pasture crop.

A satisfactory place to apply lime is on the sod crop which will be plowed next year for corn, which in turn will be plowed or disked for small grain. By this time, lime will have had ample opportunity *(Turn to page 791)*

The author is associate professor of agronomy, Pennsylvania State University.

SUBSURFACE TILLER is used to till sandy land and leave the residue on the surface for protection against wind erosion. Some tillers are equipped with 18-inch to 30-inch sweeps.

RYE AND VETCH yielded 18.9 bushels rye, 6.6 bushels vetch. With rye at $1 a bushel and vetch seed at 15 cents a pound, the total value of two crops would be $78.30 an acre.

ALFALFA is another excellent legume crop that can be grown on sandy soil. This particular field has averaged over 3½ tons of forage for each acre during a period of four years.

How to farm SANDY SOIL

Rye, vetch form a protective mulch. Crops that follow produce more and protein content is 50 per cent higher.

by F. L. Duley

FARMING sandy land may give you plenty of trouble, but by using the right methods it can be made to produce well. Sandy soils have many things in their favor. They can be worked earlier in spring and sooner after rains than other soils. Crops on sand make more efficient use of light showers than crops on heavier land. The draft of tillage tools is lighter than in most other soils.

It is also true that sands present some problems that are more acute than on heavier lands. In many areas sands are subject to severe wind erosion. They may be deficient in certain mineral plant foods, like lime or phosphorus and they are practically always deficient in nitrogen.

However, sandy lands are capable of producing good crops if the nutrient deficiencies are corrected. They also can be prevented from blowing if a cover of vegetation, either dead or alive, is maintained on the land.

Stop wind erosion . . .

Therefore, when we consider a system of soil management for sands we are up against two main problems.

1. How to stop wind erosion.
2. How to grow good crops.

These two problems may be solved at the same time because the easiest way to stop wind erosion is to grow big crops. If the soil is always kept protected the sand particles cannot be picked up by the wind.

A sandy farm in northeastern Nebraska just east of the sandhills area of the state was provided for experimental purposes by the Pierce County Soil Conservation District supervisors. Work was started in 1950 with the objectives of learning how to control wind erosion and how to grow good crops on this sandy soil.

Soil tests indicated that the land needed lime and possibly phosphate in addition to nitrogen. Some lime and phosphate were applied to part of the farm and several legumes were seeded with oats. These legumes were allowed to grow for one season. The next year the land was planted to corn, with the legume residue left on the surface to protect the soil against wind erosion and to supply nitrogen for the corn crop. *(Turn to page 786)*

The author is project supervisor of research, U.S. Department of Agriculture, Agricultural Research Service, Soil and Water Conservation Research Branch, Western Section, Lincoln, Nebraska, in cooperation with the University of Nebraska.

Is your farm shop safe?

A well-equipped shop has numerous hazards that can cause serious accidents unless you take these precautions.

by Randall C. Swanson

AS WE approach five million farm tractors in our highly mechanized agriculture, old Dobbin is almost forgotten. The next generation might even question the "All-American" rating of the horse as the measure of the unit of power.

The hose on the overhead gas tank takes over for the oat chute, and the harness room with the straps and spreader rings and extra collars is gone. The horse barn itself has either disappeared or serves as an overflow for young dairy stock.

Instead of all this, a modern farm shop with grinders and welders and air compressors; yes, and even torque wrenches, forms the hub of our new mechanized agriculture.

Not all the major repairs on tractors, trucks, and our millions of farm machines is done in the farm shop but much of the maintenance takes place there.

Many older farmers have picked up on their own a working knowledge of farm machine repair and maintenance.

Now comes a new generation of young Future Farmers and 4-H members, with scientific farm shop training. The Future Farmers in their high school shops, and the 4-H'ers at their tractor and machinery maintenance schools, learn the fundamentals of machine maintenance and repair.

Unrecognized hazards . . .

With the drawbar replacing the four-horse evener, come many new and sometimes unrecognized hazards. As the danger of a fatal kick from a startled horse or a serious runaway fade into the past, other types of accidents loom up in mountainous proportion to take their place.

Just as the do-it-yourself program in the city basements has caused a flood of hand and eye accidents, so farm mechanization, which has created the farm shop, has brought with it a new set of hazards.

Each year better-trained farmers will be spending more hours in better-equipped shops, and serious thought must be given to prevent the accidents that are resulting from the new hazards we have created.

Just in the last year, I knew two young men that either failed to recognize the hazards or, at any rate, failed to use goggles in operating a farm grinder. The tiny pieces of hot metal from the grinder cost the eye of one boy and thousands of dollars saved the eye of the other.

The grinder is one of the common tools in our modern farm shop, used for anything from reshaping a screwdriver to grinding a mower sickle.

Use goggles . . .

A pair of talking goggles that could tell this story would be ideal, but just an ordinary pair hanging by the grinder and used by the operator, can make the grinding job safe.

Near the grinder in many farm shops is the welding equipment. Both electrical and gas welding equipment is being used in thousands of farm shops.

More and more farmers can weld, although their abilities vary from expert down to making a very temporary repair. The same hazards exist for all. A good welding helmet is pretty well recognized as a necessary protection. The welder, however, does not always recognize the fellow working near him and the damage he can do to his eyes. Here again, we forget the hot pieces of metal that may land in the shavings and cause a delayed fire. Good housekeeping suggests a clean floor and that metal and woodworking sections of a shop be separated as far as possible.

Ground electrical equipment . . .

Not long ago, a farmer in the process of using an electric drill in the building of a truck box, was electrocuted. The drill was defective and the electricity selected the farmer as a ground because no other ground was provided. He died not realizing that a simple ground wire would furnish the necessary protection.

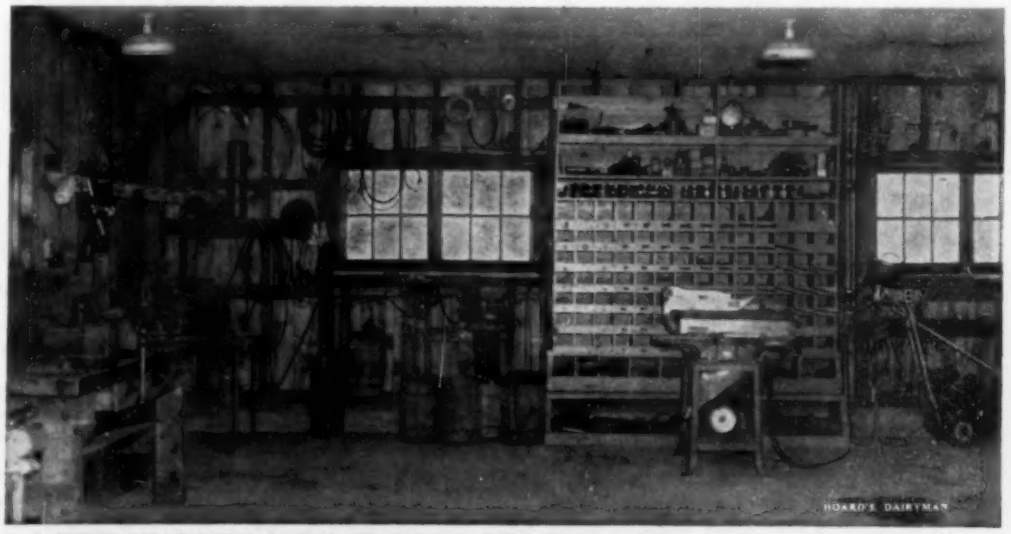
As our farm shop develops, more and more hand electrical tools will be used. A defective electrical tool such as a drill can be fatal if not properly grounded. This is one of the many hazards that goes with the modern farm shop, and the handy ground wire with a clip on both ends can make that job safe.

There have been fatalities and many close calls because of carbon monoxide poisoning. Carbon monoxide is given off when a motor is running. A motor in a shop without a provision for an outside outlet, becomes an immediate hazard. I have been willing to take the scientific figures without personal trial, when they say that 1 part of carbon monoxide in 100 parts of air can be fatal in 10 minutes.

Exhaust carbon monoxide . . .

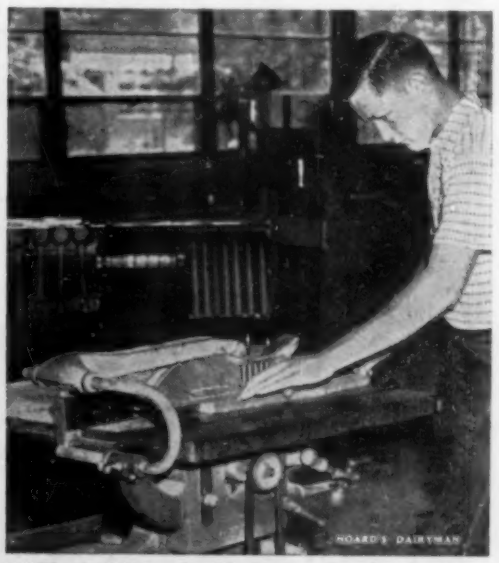
Tuning up a tractor or a truck in a closed building is a hazardous job, unless a provision is made for a flexible tube to slip over the exhaust with the other end leading to the outside. This is rather an inexpensive solution to a very serious hazard.

Most farm shops are going to need a source of heat during parts *(Turn to page 780)*



A WELL-ORGANIZED FARM SHOP has a place for everything and everything in its place. Neatness and organization play a big part toward the elimination of serious shop accidents.

GOGGLES should be worn by the man operating grinder. It takes only a small piece of hot metal from grinder to cause loss of an eye.



SAW GUARD should be used when sawing small pieces of lumber. Such precaution may help to prevent the injury or loss of a finger.

The author is farm safety specialist, University of Wisconsin.

Questions and answers on crop drying

by H. D. Bruhn

DURING the past year, hundreds of questions have been asked on crop drying. Here are some of the questions asked most frequently. I have attempted to give short, concise answers from the information we have gathered in our research work and from our practical experience.

What are the advantages of mow hay drying?

Mow drying shortens field curing time 40 to 50 per cent. It reduces the probability of weather damage, eliminates major leaf loss, and if properly done, eliminates danger of hay heating. Mow drying produces better quality hay.

What disadvantages can I expect in mow drying?

A rather expensive fan and air distribution system is required. Uncured forage must be uniformly distributed over the duct system. Most systems are a permanent installation, not easily moved.

How can I use a mow drier to make the best-quality hay?

Cut hay early in the season and use a crusher, either with the mower or following not far behind. Leave the hay to cure in swath until top leaves are nearly dry. Windrow with a side rake just before leaf shattering starts. Chop with cutter set for a 3-inch cut or longer at about 35 per cent moisture. Try to start chopping early enough so you finish before appreciable leaf shattering occurs. Distribute the hay uniformly in the barn over as much of the duct system as you can reach from one blower setting, and do not put in over 4 to 6 feet at one time. Do not walk on the wilted hay. Dry hay will rattle when you walk on it; if your hay does not rattle, run the blower until it will rattle.

How much water has to be evaporated to make a ton of dry hay?

In the following table are shown the pounds of water that must be evaporated from hay at various moisture contents to make one ton of hay at 20 per cent moisture.

Per cent water	Wgt. water
30	286 pounds
40	666 pounds
50	1,200 pounds
60	2,000 pounds
70	3,333 pounds
80	6,000 pounds

At 30 per cent moisture the top leaves in a windrow are brittle on a fast-drying day. Between 30 and 40 per cent moisture is recommended for chopping for mow drying. Standing alfalfa in the field is usually between 70 and 80 per cent moisture.

What is the cost of operating a mow drier per ton of finished hay?

The following table shows average costs of mow drying to an average of 20 per cent moisture with unheated air.

Moisture content at time of chopping	Cost per ton
Per cent	
30	$1 to $2
40	$3 to $4
45	$4.50 to $6

What are the advantages of using heated air if it is more expensive?

The quality of hay is usually better because drying is faster. The capacity of a system is larger and drying is not dependent on the weather.

Except for cost, are there any other disadvantages in using heated air driers for mow drying?

The equipment is more expensive and unless properly installed and operated there is some fire hazard.

What are the advantages of using a forage crusher?

The main advantage is faster drying (one day less in the field). This allows less chance for weather damage. Because stems dry faster when crushed, there is less leaf loss due to shattering.

Are there any objectionable features of crushing forage?

A combination mower and crusher does not cover quite as many acres in a day as a mower alone. A separate crusher requires one extra operation.

How can I get the maximum benefit from my crusher with the least trouble?

Set the corrugated roll machines as high as possible and still pick up clean, and keep the power take off (p.t.o.) up to standard speed, 550 revolutions per minute (r.p.m.). Set the smooth roll machines tight enough to run the rolls a little wet, and keep the roll speed high.

What are the advantages of drying hay in a chopper box, that is, wagon drying?

Wagon drying shortens field curing time 40 to 50 per cent. There is less chance for weather damage, and major leaf loss is eliminated. There is less carotene loss, and the hay has higher feeding value. Wagon drying usually does not involve the possibility of a heavy fire loss. Wagon drying equipment can be used for several crops. The complete equipment is portable and can be used on several farms.

What disadvantages are involved in wagon drying?

Considerable equipment is required, such as a portable crop drier and two or more drying wagon racks of special construction. The daily capacity is limited to about one ton of hay per operating hour. The dry hay shatters easily when unloaded from the wagons so it should be handled in conveyors rather than blowers.

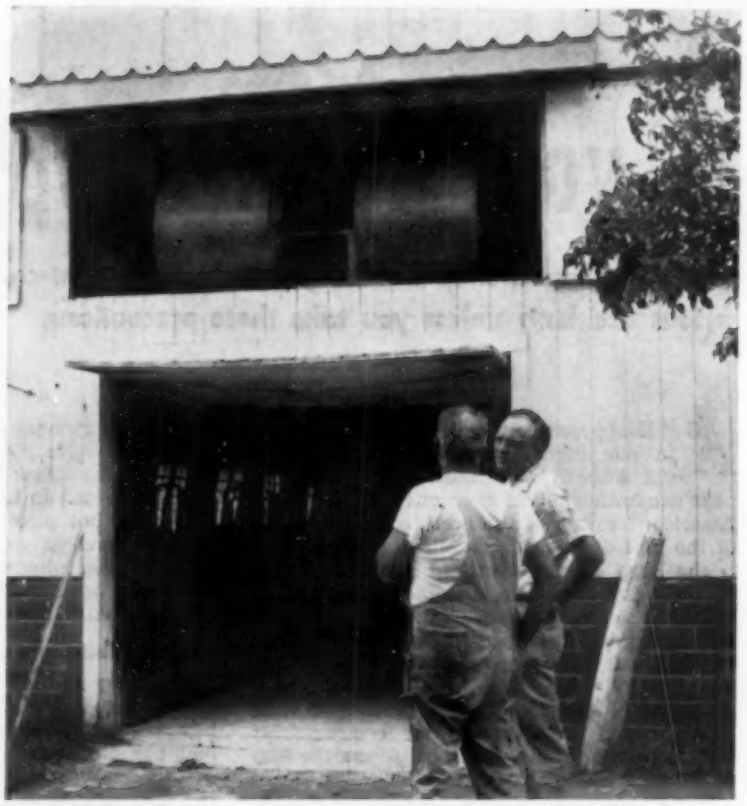
What is the best procedure for wagon drying of hay?

Cut early in the season when crop is best for good hay. Mow, preferably with a crusher, in late afternoon and early in the morning. Field cure in the swath until top leaves are dry. Windrow before driest leaves begin to shatter.

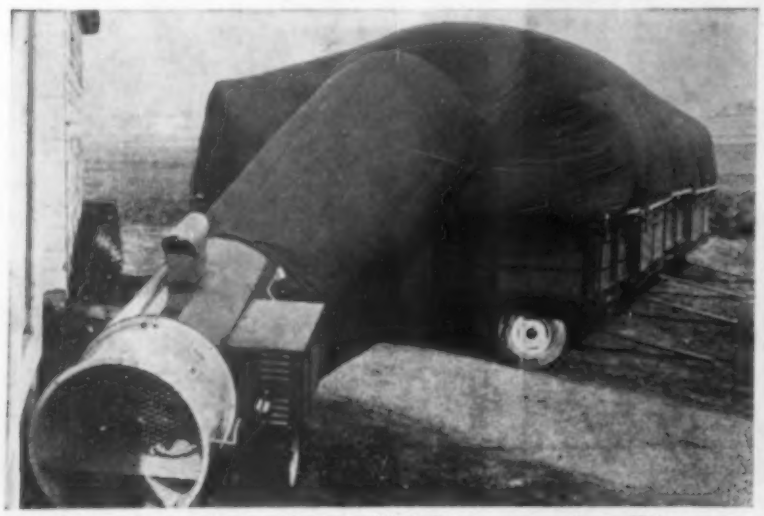
Chop with three-inch cut or longer as near 35 per cent moisture as possible. Fill chopper wagon and tramp sides and ends. Do not walk in center. Dry at 160 to 200 degrees with portable crop drier. Stop drying while top of load is still tough.

Put the dry hay in the barn with

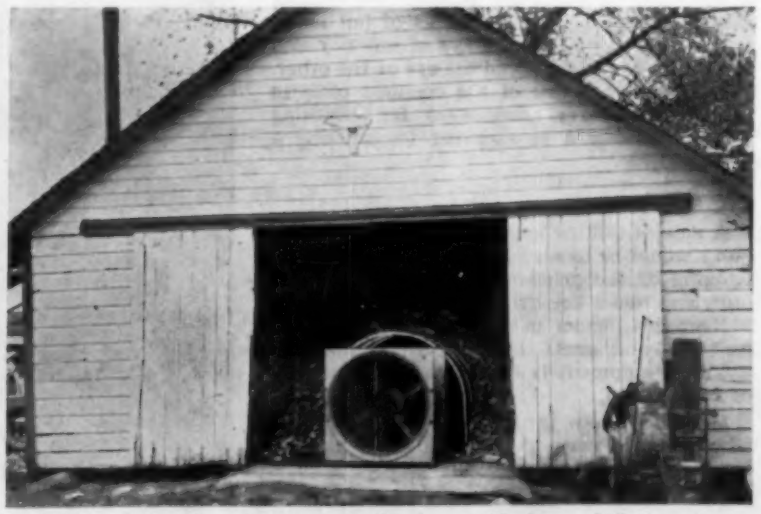
The author is a professor of agricultural engineering, University of Wisconsin.



DRYING HAY with two 26-inch, centrifugal fans and a 7½ horsepower motor. This farmer has had 10 years of mow drying experience.



HEATED AIR is drying 10 tons of baled hay at one time. This saves handling the bales an extra time and drying can begin much sooner.



DRYING CORN in a double corncrib. A portable fan and duct system in the center of corncrib driveway will dry corn in entire structure.

an elevator. Blowers cause serious shattering and separation.

What is the operating cost of wagon drying chopped forage with a portable crop drier?

The following table shows average costs of wagon drying to an average of 20 per cent moisture:

Moisture content at time of chopping	Cost per ton
Per cent	
30	$1.50 to $2.00
40	$3.00 to $4.00
45	$4.50 to $6.00

What are the advantages of drying corn with heated air?

Molding in the crib or bin is eliminated. Drying allows earlier harvesting because it is not necessary to wait for field drying. It lengthens the harvest season because of the earlier start and reduces field losses. Closed storage bins, both ratproof and weatherproof, can be used. The shape and type of structures that can be utilized are less expensive than standard, natural-drying structures and can also be used for other storage. The moisture content can be reduced to a point where long-time storage without serious losses is possible.

What are the important points in drying ear corn?

Place the corn in a special bin, crib, or wagon rack of such construction that heated air can be blown through the corn and where air travel distance through the corn is essentially the same all over. Do not let shelled corn accumulate in one place while the corn is put in the bin.

Use heated air from portable crop dryer or furnace and fan. These temperatures are recommended: 90 to 130 degrees for milling corn; 90 to 200 degrees for feeding corn. Start drying at lower temperature if the corn is rather wet or if outside temperature is low. Be careful of milling corn; too high a temperature will spoil corn for milling.

The air flow should be about: 30 to 40 cubic feet per minute per square feet of floor in bin; 5 to 7 cubic feet per minute per bushel in crib; 10 to 20 cubic feet per minute per square feet of floor in wagon.

The depth of corn for efficient drying should be: 12 to 16 feet in bin; 4 to 5 feet in wagon rack.

Better drying efficiency is possible in the bin because of the greater depth.

What are the operating costs of drying ear corn with heated air?

Here is a table to show fuel and power costs when corn is dried to 16 per cent moisture:

Initial moisture	Approximate cost per bushel
Per cent	
20	$ 0.03
25	.05
30	.08
35	.11
40	.14

The labor costs of drying depend on handling. In some cases of bin drying, the labor costs are very low if corn is dried and stored in the same bin. The equipment depreciation costs depend on amount dried per year. Lower storage costs may offset part of the equipment cost.

Can corn be dried without heating the air?

A limited amount of drying can be done without heating the air. However, after the corn harvest, natural drying conditions generally are not very good. If the corn moisture content is above 25 per cent for ear corn, heated air drying is usually recommended.

If shelled corn is to be stored in quantity beyond April or May, heated air drying is almost always necessary. If large bins are used, slow ventilation up into the dead of winter is desirable.

Sealed storage of high moisture shelled corn is another alternative, if the corn can be fed directly from storage.

What are the advantages of grain drying?

Drying prevents heating and molding in the bin. Some types of insect damage only take place in damp grain and can be eliminated by drying. Grain can be harvested earlier. Harvesting losses can be reduced due to earlier harvesting and less delays during harvest due to weather conditions.

What weight of water must be evaporated to make one bushel of dry grain at 13 per cent moisture?

You will find the answer in the following table which is set up for several grains at varying initial moisture contents:

Weight of water evaporated per bushel

Initial moisture	Shelled corn	Oats	Wheat	Barley
Per cent	Pounds	Pounds	Pounds	Pounds
13	—	—	—	—
14	0.6	0.4	0.7	0.5
16	2.0	1.2	2.2	1.7
18	3.3	2.0	3.7	2.9
22	6.3	3.7	6.8	5.5
26	9.5	5.6	10.4	8.4
30	13.2	7.6	14.4	11.7

What are the best practices to follow in drying grain?

There are two methods. A fast method with heated air, and a slower method with unheated air:

With heat (fast method in batch or bin):

Provide an adequate air distribution system.

Provide 20 to 40 cubic feet of air flow per minute per bushel of grain at 1- to 2-inch pressure.

Maximum temperature 130 degrees for market grain.

Maximum temperature 100 degrees for seed.

Maximum temperature is not critical for feed grain. Temperatures up to 200 degrees seem satisfactory.

Depth of grain 18 inches to 3 feet. Less than 18 inches reduces efficiency and over 3 feet slows drying.

Dry to an average of 13 per cent.

Cool the grain to outside air temperature before stopping fan.

Mix the grain for final storage because some spots may be overdry while others remain too damp.

Without heat (slow method in bin — 2 to 4 weeks' operation):

Provide adequate air distribution system.

Provide an air flow of 3 to 5 cubic feet per minute per bushel of grain at 1- to 1.5-inch pressure.

Depth of grain not over 4 to 6 feet.

Operate fan when humidity is under 70 per cent.

Mixing usually is unnecessary.

Dry to 13 per cent moisture if possible.

THE END

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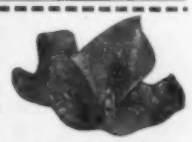
This Really Is The "Uddermost"



Permasoft® Uddersponge is bacteria resistant—won't mildew nor sour. No objectionable odor ever. Can be boiled or placed in any standard sterilant. Won't shred nor crumble. Always soft and flexible, wet or dry. Holds lots more water than rags or paper. Washes and warms the udder quickly, thoroughly. The cow loves it. Upgrades your milk. Costs less than even paper towels. User reports show that one Permasoft Uddersponge can do 50 cleanings every day for more than a month. 8"x8"x½". 35 cents each; package of 6 at your dealer, or postpaid $2.00.

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Send $1.00 and name and address of your milk plant or dealer and we will send you three Permasoft Uddersponges postpaid. Write or print your address plainly. Send currency or check — no stamps.

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... *then* ***fill with Even-Flo***

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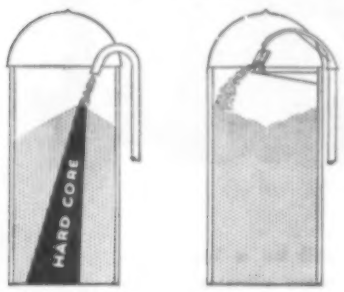

BLOWN IN FILLED WITH EVEN-FLO

Silo on left shows pattern of feed blown in the common way, hard core in center, cobs and light fluffy material rolls to outside, this means poorly mixed feed, uneven weight distribution and bad drainage to outside wall. Silo on right shows EVEN-FLO pattern, even mixed, proper weight distribution and good drainage to center of silo.

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How to plan for Parlor Milking

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Start your parlor planning with a good look at your entire farmstead layout. Check your feed lot, feed storage and building arrangement. Then see what can be done to make your work easier and more profitable. Parlor milking is a big labor saver in either a stall barn or loose housing set-up. And you save *more* labor and money when it fits into a correct overall plan.

Milk standing up . . . In a modern parlor you'll feed and milk without stooping . . . with few steps. In a low cost four stall walk-thru or gate type parlor one man can manage 30 cows per hour. Six stalls enable a fast operator to handle 45 cows per hour. With a CLAY Herringbone parlor one man can milk *and feed* up to 60 cows per hour. Plan to feed your cows while you milk. You can do it with a flick of the wrist with CLAY Feeders . . . They're built into the stall to save space and cut cost.

Ventilation, lighting, water supply and drainage should also be carefully considered. Make sure your parlor is designed for future pipeline and bulk cooler to save money.

Free planning help. Parlor milking is discussed in detail in an informative new booklet by CLAY. The booklet contains numerous parlor and milk room plans. Tips on farmstead layout are included. Also ask about CLAY'S new Purchase Plan. For complete information, write to CLAY, *today*.

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Water deep under your farm?

In many regions water levels are declining. It may be wise to consult a competent engineer or geologist before drilling.

by Fred Beckett

MODERN RIG can drill a well quickly because underground rock will not hinder drilling operation.

DO YOU need a deep well? It probably would have some outstanding advantages over an ordinary shallow one. A constant year-round supply of pure water is among the most important.

Although shallow wells usually furnish plenty of water during wet seasons, droughts often bring shortages. This is because a shallow well is supplied from the rainfall in the immediate locale of the well.

Seasonal fluctuations that occur in shallow wells are not noticeable in good, deep wells. The deep well penetrates an impervious stratum into a water-bearing material below and, therefore, its water comes from rainfall in far-off areas. More underground storage and the rationing effect of water from remote points causes a steady supply.

Bacteriological purity is another consequence of water's moving long distances through the earth. When a deep well is found to be contaminated, an investigation almost always proves impurities entered through a faulty casing or cover.

In some parts of the country there is no water at shallow depths. A well drilled through the shallow stratum will often produce an ample supply from deeper materials.

Costs are higher . . .

Offsetting the advantages of dependability and lessened danger of pollution is the disadvantage that the cost of drilling a deep well may be greater than the cost of constructing a shallow one. Pumping costs are likely to be higher, also.

When water passes through the ground, chemicals are dissolved in it. Because deep well water has passed great distances through earth, it is more likely to be hard or to contain undesirable minerals than shallow well water.

Despite the disadvantages, however, when water can be found, the deep well is usually the best source for a farm supply.

Hard to find . . .

Most people agree that deep wells are good. But, like fourleaf clovers, oil, and the pot of gold at the end of the rainbow, underground water is sometimes hard to find.

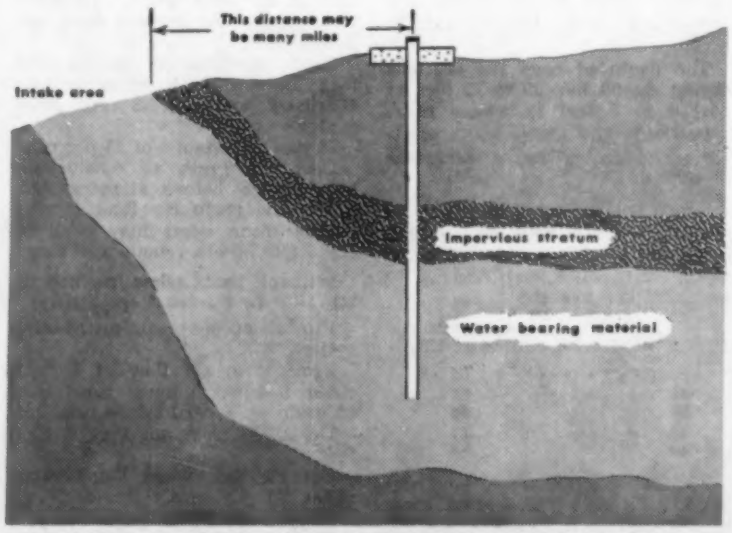
Originally, all water beneath the surface of the earth came from rainfall. Once underground, it usually does not flow in streams like surface water. The flow is very slow and over wide areas in materials such as sand, gravel, broken lava rock, and porous sandstone.

Water in limestone is found in the cracks, crevices, and caverns of the formation. There is no water inside the stone. Spectacular examples of limestone caverns are Mammoth Cave in Kentucky and Carlsbad Caverns in New Mexico.

Locating these water-bearing materials, sometimes called aquifers, is often difficult. The sand-gravel beds were deposited in the remote past, usually millions of years ago, by rivers, lakes, and oceans. Later, these aquifers were covered by other materials.

Unfortunately, it is impossible to

The author is a graduate student in agricultural engineering, Oklahoma A. and M. College.



CROSS SECTION shows how deep well penetrates the impervious stratum to water-bearing material. Intake can be miles from well.

tell how a river ran a million years ago by looking at the surface of the earth today. It is equally impossible to tell if a long extinct ocean or lake deposited sand or clay at a given location.

The cracks and crevices in limestone are even more unpredictable and, therefore, are more dificult to locate.

Drill to be sure . . .

At present the only absolutely sure way of determining if there is water under your land is to drill. Seismographic methods like those used in prospecting for oil have been used, but they are not infallible. Added to this, they are too expensive for ordinary use.

Although dowsing or waterwitching is widely practiced, no known scientific facts suggest that water can be found in this manner. It probably is no more accurate than an outright guess.

Everything is not completely dark though. There are some sources of information about underground water. Your state geologist might be able to give you an idea of the chances of finding water. He may even be able to give you an estimate of the depth.

The ground water division of the United States Geological Survey has made extensive studies of ground water conditions in many areas. If they have done so for your section, they will be able to give you information.

See local driller . . .

Consider yourself fortunate if there is a reliable driller operating in your vicinity. He will be able to tell you much about ground water conditions.

Finally, do not fail to check with your neighbors. If they have successful wells, your chances are good, also.

If you live in a section of the country that has many large-capacity wells, there is one more thing to consider. When water is removed from an aquifer faster than it is replaced by rain, the water level will fall. There is little danger of domestic wells removing water at this rate. Wells supplying cities, large industries, and irrigated farms are a different matter.

New Jersey-Michigan declared brucellosis-free

In late June and early July two more states achieved the coveted goal of being designated modified certified brucellosis-free. New Jersey became the thirteenth state to reduce the incidence of infection below 1 per cent of the cattle and 5 per cent of the herds with brucellosis.

Michigan followed closely behind as the fourteenth state.

These two joined the "select circle" of North Carolina, New Hampshire, Maine, Wisconsin, Washington, Vermont, Connecticut, Minnesota, Delaware, Rhode Island, Pennsylvania, and Utah.

There are now 1,179 counties in 25 states certified. These represent about 37 per cent of all counties in the United States.

Immediately following its certification, New Jersey passed a law providing that no bovine animals can be imported into New Jersey unless they come from certified brucellosis-free herds or from qualified negative herds within a certified state or area. Only exceptions are registered bulls which may be imported into New Jersey from non-certified herds under strict quarantine requirements.

GOOD RESULTS

—as reported by Jack Frost, Herdsman, Fowler Farms, Eaton County, Michigan

"DHIA records show we had a return over feed cost of $353 per cow with our MoorMan fed herd, with milk selling at less than $4.00 per hundred.

"Our 22 cow herd produced over one-third of a million pounds of milk last year. They are on a MoorMan Feeding Program. And the total feed cost to produce a hundred pounds of milk was only $1.31. My eight years' experience has proved that cows produce more milk at less cost when they are on a MoorMan Feeding Program the year 'round.

"This herd produced an average of 13,743 pounds of milk and 511.6 pounds of fat. DHIA records show the profit over feed cost was $353.00 per cow. We have tried other feeds and proved to ourselves that a MoorMan Feeding Program will definitely produce more milk at a lower cost."

MoorMan's Mintrate* for Dairy Cows can help raise your herd average, too. For Mintrate is a power-packed blend of rich proteins, minerals and vitamins. Only about a pound a day, fed the year 'round, helps cows wring more of the milk-producing nutrients from home-grown grain and roughage.

For maximum production and profits, ask your MoorMan Man on his next call to explain the MoorMan feeding program that helps get these results. If your MoorMan Man doesn't call soon, write Moorman Mfg. Co., Dept. P88, Quincy, Ill.

MoorMan's*
Since 1885—73 years of friendly service
Mintrate for Dairy Cows
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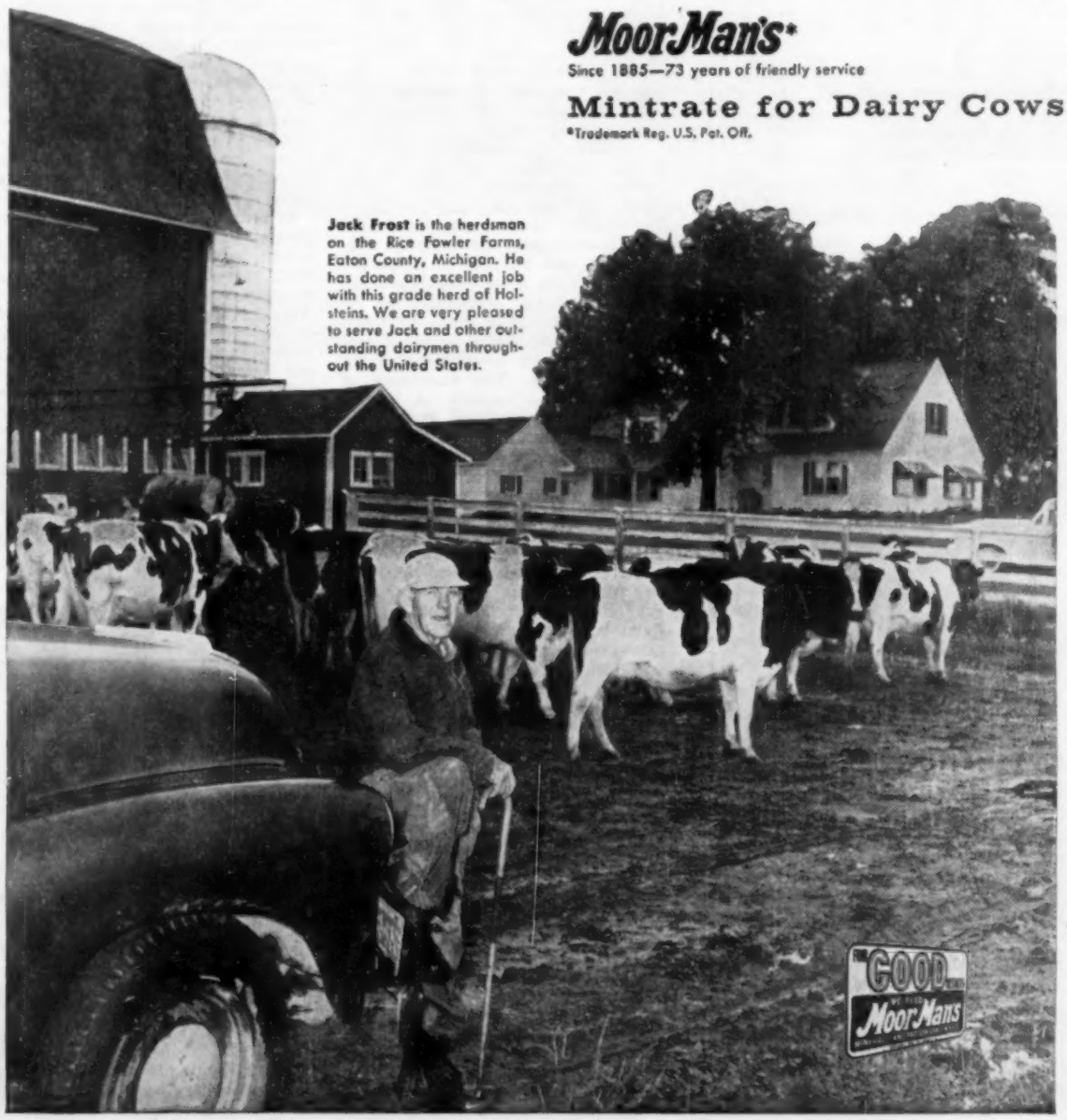

Jack Frost is the herdsman on the Rice Fowler Farms, Eaton County, Michigan. He has done an excellent job with this grade herd of Holsteins. We are very pleased to serve Jack and other outstanding dairymen throughout the United States.

GAUZE-FACED MILK FILTERS

on the way

OUT!

There was a time when gauze facings on a milk filter were the sign of quality . . . because they added strength, prevented washing and tearing and, some people thought, helped remove sediment. Today, gauze adds nothing but cost, because . . .

New Kendall non-gauze filters are almost twice as tough as even top-priced gauze-faced filters . . . so they won't tear or wash even if you filter extra large quantities of milk. They filter more milk and filter it faster. They are more dependable in removing sediment. And they cost up to 25% less than top-priced filters.

Small wonder thousands of milk producers, large and small, have switched to Kendall non-gauze milk filters. Test them yourself — use coupon below.

NEW plastic dispenser! only 50c (SPECIAL $1.00 VALUE)

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You may want to incorporate

(Continued from page 761)

stockholder and usually president of the corporation. He then hires himself as manager at a stipulated salary. As an employee, he has certain advantages he did not previously enjoy. In most cases, these advantages are minor, but they can be of major importance.

Farmers came under the Social Security Program in 1956. Since then it has been of great importance for farmers above middle age but under 65 to keep farm earnings high each year. The retirement benefits under social security depend on the average annual earnings reported before age 65. For most farmers, this means earnings between 1956 and the year they reach age 65.

In a few cases, a farm owner has incorporated his business and hired himself for $4,200 a year in order to insure maximum social security benefits. Even though the corporation loses money in some years, this practice can even out the returns to the owner from year to year, for social security purposes.

Another advantage the owner enjoys as a corporation hired hand is that he then is covered under the Workmen's Compensation or Employee's Liability Insurance policy carried by the farm corporation. At least one corporate farm owner has expressed an opinion that this insurance protection against injury on the job was important.

Disadvantages, too . . .

Greater flexibility of ownership, limited personal liability, the advantage of being a corporate employee — these are the advantages most commonly cited by the advocates of the corporate family farm. There are also disadvantages which cannot be ignored.

Farmers who consider incorporating are wary of the red tape involved. They want to know what they're getting tangled up with in the way of tax reports, legal fees, and bookkeeping procedures. Organizing and running a corporate farm involves some complications.

The procedure and costs for organizing vary from state to state. In New York, three or more persons may form a corporation for legal purposes. The assistance of an attorney is needed. A certificate of incorporation, giving detailed information about the name, purpose, officers, and stock must be filed with the Secretary of State.

Any amendment to the certificate must be filed and annual meetings of stockholders are required. Any important business transaction requires approval of two-thirds of the stockholders. State and Federal corporate income tax returns must be filed annually. Some definite practices must be followed in corporate bookkeeping.

Legal requirements for organization and operation of the family corporation in Wisconsin and many other states are very similar to those under New York law.

Most family farm corporations hire an attorney or tax accountant or both to assist regularly with the above problems. However, some families have found it possible to do without outside assistance once the corporation was organized and operating.

Costs of incorporating . . .

There are expenses which accompany incorporation, but they generally are not large enough to be a deciding factor. The expenses include a charter fee or other organization tax. There is a tax on the transfer of stock by the Federal Government and by some states. There is also a fee for legal counsel.

These costs vary with the size and organization of the corporation, and with the attorney selected. An attorney familiar with the small business corporation has stated that total costs for incorporating a family farm of average size could be accomplished for about $300.

Additional costs after incorporation is completed will depend on how the amount of accounting and legal services are hired. In most cases, such costs could be kept low. Annual expenses for the corporation would also include greater social security taxes and higher premiums on employer's type insurance, if such insurance was carried.

Increases federal tax . . .

Viewed from the tax standpoint, the corporate family farm appears to have some advantages and many disadvantages. These may vary from state to state.

Incorporating places the farm at a disadvantage as far as the Federal income tax is concerned. Corporate profit is taxed at a higher rate than are individual incomes. At present, corporate income up to $25,000 is taxed at 30 per cent. Furthermore, if the corporation shows a profit, then pays this profit out to family stockholders, this income is taxed twice — first as corporate profit, then as income to the stockholder.

However, most families operating their farms as corporations plan to set salaries to family officers high enough so that the corporation makes no profit. This avoids double taxation and taxation at the high corporate rates. This method of siphoning off corporate income to cut taxes works well for farms where the annual income is relatively stable and salaries can be gauged accordingly.

It is more difficult to avoid corporate profit in a farm business where income fluctuates violently from year to year. A dairy farmer should have little difficulty, but a fruit farmer might have much difficulty in roughly estimating corporate income at the beginning of the year.

Even if corporate profit can be avoided, the corporation is at a tax disadvantage on treatment of capital gains under the Federal income tax. Dairy farmers who now file on the cash basis get a decided advantage on sale of dairy cattle qualifying as capital gains. Only 50 per cent of such gain is taxable. In a corporate dairy farm, however, the entire capital gain is taxable, usually at a 25 per cent rate.

There are some tax advantages for the corporation. At very high levels of income, corporate taxes are less than on individual incomes. Incorporation might make it possible in some instances to divide total farm income among more family members and lower total taxes. Such cases would be unusual.

In New York State, the unincorporated business tax can be avoided by incorporating. This advantage is of minor importance when compared with Federal income tax considerations. The same is likely to be true of similar advantages which may exist under other state tax laws.

In summary, the probability of higher tax obligations is a major disadvantage of incorporation.

May solve financing . . .

Some people believe that incorporation is the answer to the growing need for outside capital in the farm business. It is suggested that farming, like other business, could be partially financed by selling stock to outsiders. This would provide permanent outside capital for the farm business. It would make the farm operator less dependent upon credit agencies for financing normal growth and expansion. However, it would also mean that at least partial control of the business would be taken from the family.

It is doubtful if an investor would be willing to buy stock in a farm business over which he had no control, where a major objective was to draw off corporate profit in salaries to the farm family, and where profitable operation was dependent entirely upon the farm operator's management ability. Some practical system for selling stock in a family farm may be worked out in the future. At present, incorporation is not a way of getting and using outside capital.

How it adds up . . .

In weighing the pros and cons of incorporating the family farm, the score seems to add up like this:

In favor:

More flexibility in owning and transferring the farm to the next generation. A real advantage where a large farm is owned by several members of the family.

Limited personal liability. An important advantage when the farm owners also hold significant amounts of non-farm property.

The advantage of being an employee. Important only in unusual cases, especially relating to Social Security.

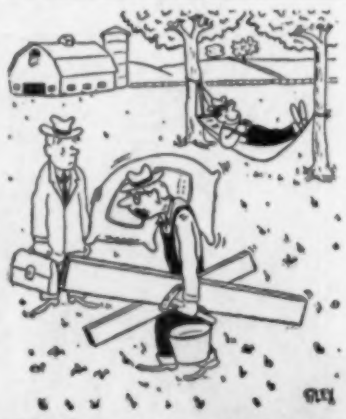
Opposed:

Additional red tape. A disadvantage more psychological than real, but one which would deter many families.

Costs of incorporation. Of some concern, but generally would not be the deciding factor.

Increasing tax liabilities. Though not universally true, the probability of higher tax costs is the biggest single disadvantage.

The family situation will determine whether the advantages of incorporation outweigh the disadvatnages. When the farm investment exceeds $100,000, or when there are three or more families involved in one farm operation, incorporation deserves consideration. If neither farm or family is that big, incorporation will seldom be the answer. Before making any definite move towards incorporation, an attorney skilled in corporation law should be consulted. **THE END**



"It's my son's place now. I retired a couple years ago."

A study shows machinery, drowning, firearms, and falls are the leading causes of death to farm residents outside the home, the National Safety Council reports. Next most dangerous hazard? Animals.

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LOOK AT THESE TEST* RESULTS!

Product	Average Number Flies Killed Per 24 Hours
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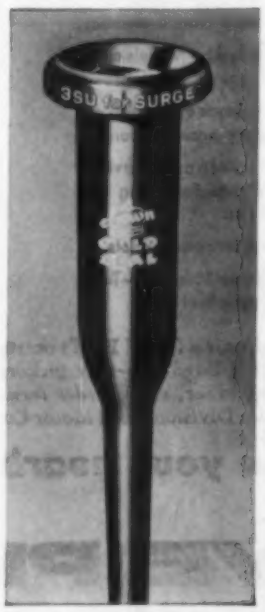

FEEDING

by N. N. Allen

Feed silage and no hay?

Tests show feeding both hay and silage gives better results than either hay or silage alone.

WE FREQUENTLY receive inquiries on using grass silage as the only roughage. A few years ago, when silage was made with the equipment used for handling hay and corn silage, most dairymen preferred to put up most of the crop as dry hay. Silage appealed to them mostly as weather insurance.

Now, with power equipment that takes the hard work out of the grass silage operations, it may actually go faster than haying, in addition to getting around the problems of poor drying weather.

So, why not do away with the dry hay entirely and put up the whole crop as silage? Some research done at the Michigan Experiment Station gives us some good information on this question.

Hay and silage compared . . .

They put half of a group of cows on an all-hay diet and the other half on all-silage. The silage and hay were made from the same crop harvested at the same time. Both groups got all they would eat.

After six weeks the groups were switched. The cows getting hay ate about a third more dry matter than when they got silage. They gained weight on hay, but lost weight on silage. Milk production was about the same.

Another trial gave even greater differences. When the hay was soaked in water until it was almost as wet as the silage, the cows ate just as much as when fed dry. This shows that there is more to it than just the water in the silage.

When the silage was neutralized until it was no more sour than the hay, the cows ate no more than before. This proves that the acid in the silage is not to blame, either.

Maybe we would have to be a cow to figure out just why, but cows have pretty consistently told us that they will not eat as much dry matter in wet silage as in dry hay. It is not just lack of room, either, for the cows on the silage still drink quite a bit of water in addition to what they get in the silage.

Heifers gave similar results . . .

Another experiment with 24 yearlings gave similar results. These heifers ate more dry matter in hay than in silage, just as the milking cows had done. They also gained less on silage. And on a very high moisture silage, they ate still less dry matter and gained very little. When some ground dry hay was mixed with the high-moisture silage, the heifers ate considerably more dry matter.

Well, this all adds up to the fact that while all of the roughage can be fed as silage, we will not get quite as good results as with hay. And, while these experiments were not set up to show it, other experiments have pretty consistently shown that feeding both hay and silage gives better results than either hay or silage alone. But we can go quite a way in either direction and still get good results.

We sometimes hear claims that grain feeding is not natural for cows, that it will decrease digestion, particularly if fed fairly heavily.

Grain improves digestion . . .

In other Michigan tests, research workers fed one group of cows hay and grain at an 80-20 ratio, another 50-50, and the third 20-80, figured on a dry matter basis. The digestion of everything except fiber was improved as the proportion of grain to hay increased. Then at each of these grain-hay ratios, one group was fed what would be considered a good level of feeding; another got only 70 per cent of that amount, and the third lot received 130 per cent.

Surprisingly enough, as the cows were fed more heavily, the digestion of the nutrients in the feed, especially the fiber, was increased. There's not much in this report to indicate that either high grain to roughage ratio or heavy feeding tends to lower digestibility.

While we are not recommending feeding higher proportions of grain (that will depend on the economics) there's no reason to be afraid of it if roughage is high priced or scarce and grain is plentiful and cheap.

Wetting feed . . .

Well, we might as well make this a full Michigan story. They have been trying ways to speed up the rate of eating the grain mix. It's not a case of encouraging bad table manners in the cows, but it's one of the problems of progress.

When our cows go through the milking parlor, they are usually fed their grain while being milked. With milking speeded up, there is not time for a leisurely meal.

By mixing 1½ pounds of water with each pound of grain mix, the cows ate about 50 per cent more feed in the same time. Since it did not have any effect on the rate of milking, this can help to get more grain into the cows without holding up the milking operation.

It's interesting, isn't it, how each new development or improvement brings its problems.

". . . and now for a look at the weather!"

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One spraying kills flies for 4-8 weeks

YES, SPRAY LESS FOR EFFECTIVE FLY CONTROL, because one spraying of Diazinon on dairy barn walls and ceilings *kills* flies, and *keeps on killing,* for 4-8 weeks.

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GEHL Chop-All
PRONOUNCE IT "GALE"

YOU CAN'T BEAT GEHL'S LOWER PRICE

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GEHL BROS. MFG. CO., Dept. MH-5219, West Bend, Wis.

Revive an old custom ... have a barn raising

(Continued from page 764)

HAM SANDWICHES being distributed by Miss Bertha Nubig, a neighbor. About 75 men ate at noon on back lawn of the Page farm.

done ahead of time. Usually, holes are dug and some poles set. It pays to have some of the aligning and finicky work done ahead of the day when a large number of workers arrive.

By working a day or two beforehand, the dairy committee members gain experience and are prepared to act as foremen when a lot of workers are on the job. One big problem on a barn raising is to find men with the know-how and confidence to guide a crew of men. It is advisable to hire an experienced contractor and some of his men for the two or three days of the barn raising.

Built barn in two days . . .

Last August, Leon Speed, Atkinson, Maine, lost his dairy barn and home by lightning. It was one of the typical New England structures with the barn connected directly to the house. He decided to rebuild a low-cost, pole-constructed, loose-housing barn. Since many neighbors offered to help, an official barn raising seemed in order.

Two days ahead of the scheduled date of the raising, 10 or 12 neighbors dug holes, set poles, and nailed on a few plates. On Saturday morning 45 men started placing rafters on the feeder barn; another crew framed the loafing barn.

Sunday night at 4:40 the loafing and feed barns were complete. Speed, with a few neighbors, completed the barn by building milking parlor stalls in the garage. They also built doors for the pole barn and poured concrete in the feeding area and also in the barnyard.

Farmers built a 50-cow barn in two days on the Judson Page farm, North Bramford, Conn. He decided to build a 50-cow pen barn after losing his dairy barn by fire. A barn raising was organized through the efforts of the county dairy committee, the county agent, extension dairyman, and extension engineer from the colleges.

Three days ahead of the building date, the dairy committee dug holes and set poles. Since the barns were large (78- x 52-foot and 104- x 43-foot) the barn raising was scheduled for three days. The farmer also hired a professional pole barn crew of nine men to work with the farmers.

The work progressed ahead of schedule and the barn was completed by 4:00 p.m. of the second day. It was fortunate in that it rained hard the third day. There were many favorable reactions to this barn raising.

Judson Page had a new loafing and feed barn in two days. The workers felt that they had contributed something to benefit a neighbor. Extension people had completed a method-demonstration. Some of the farmers had more confidence to build on their own farms. Also the workers and many others in the community had a personal interest in the success of Page's loose-housing operation.

Above all, it revived an old colonial spirit which we might think is dead in this day of hustle and bustle. American farmers still have it; give them a chance to prove it.

THE END

COMPLETED BARN on left and open-front loafing barn at right were finished in two days. Milking parlor was completed later.

Progress report on . . .

deep tillage and fertilization

Depth of tilling and depth of fertilizer placement had no significant effect on yields.

by J. B. Fehrenbacher, J. P. Vavra, A. L. Lang

30 BUSHELS more were harvested from fertilized plot (left) than from unfertilized plot at the right.

IN RECENT years a variety of experimental work has been concentrated on the extensive claypan soil areas of the Midwest.

Researchers have used soil chisels to place fertilizers at deeper levels and to penetrate the compacted silty clay and clay subsoils that lie at various depths below leached silt loam surface soil layers. What is heightening interest in subsoil study among researchers is the fact that preliminary results are not panning out as expected.

A different approach to the problem of deep tillage and deep placement of fertilizer in claypan soils is now in the fourth year of a long-term study started in 1955 at the Southern Illinois Cooperative Agronomy Research Center.

The authors are assistant professor of soil physics, University of Illinois; associate professor of soil chemistry, Southern Illinois University; and professor of soil fertility, University of Illinois, respectively.

Four questions . . .

The agronomists set their sights on finding some conclusive answers to the following questions:

1. What is the influence on crop growth and yields of mixing various amounts of the clayey subsoil with the silty surface soil of a claypan soil and fertilizing the mixture at various rates?

2. What is the influence of mixing such a soil to various depths but putting varying amounts of fertilizer only in the upper nine inches?

3. How do such tillage and fertilization practices compare with the conventional practices of tilling the upper nine inches of soil with various rates of fertilization?

4. How long will any effect of deep tillage and fertilization last?

Four tillage or mixing depths were used in the experiments. The soil was not merely stirred, but all of the soil to the various depths was thoroughly mixed. Mixing was done to the 9-inch depth with an ordinary plow and disk; to the 18-inch depth with a disk plow; and to the 27- and 36-inch depths with heavy road-working machinery.

At the 27- and 36-inch depths the soil was entirely removed, fertilized and thoroughly mixed, and then returned to its original space.

Mixing to 9 and 18 inches in the ways used in this study would be practical on many farms; whereas the methods used at 27 and 36 inches would be too costly.

The experimenters were surprised when they found that, to date, the depth of mixing or tilling the soil had no significant effect, irrespective of fertilizer treatment.

Depth of placement of fertilizer had no apparent significant effect at the minimum rate.

At the two highest rates of fertilization there were significant decreases in corn yields in 1956 where all of the materials were placed in the upper nine inches. Similar decreases did not occur in 1957 indicating that the 1956 decreases had been due to a temporary salt effect.

A study of the yields shows that corn yields tended to decrease with increased rate of fertilization at mixing depths of 9 and 18 inches in 1956, and at mixing depths of 9, 18, and 27 inches in 1957. Fertilizer at the minimum rate, including limestone, increases corn yield an average of 40 bushels per acre over no fertilizer or lime.

One plot received 9 tons of limestone, 3,630 pounds of 0-20-0, and 1,452 pounds of 0-0-60 per acre, and represents the treatment needed, according to soil tests, for the total 36 inches of soil. Three other plots received 2, 3, and 4 times the first plot. The check plots received no fertilizer or lime, but like all of the plots, they received 200 pounds of nitrogen as plowed down in the spring of 1956 and 1957. During 1956, the corn population was 13,000 and in 1957, 16,000 plants per acre.

Moisture studies of the variously mixed zones showed that mixing some of the clay from the claypan or subsoil with the silty surface soil increased the moisture-holding capacity. It also increased the amount of moisture held too tightly for plants to use. This left the available moisture storage capacity about the same as in the original unmixed soil.

Roots penetrate deep . . .

Root development of the corn was studied on selected plots in 1956. This indicated that tillage or mixing alone had little effect on maximum root penetration.

Fertilization increased root growth and penetration, especially where the fertilizer was placed throughout the entire mixed zone. The higher rates of fertilizer, when placed in the upper nine inches only, reduced stalk growth and root penetration, as well as yields. This may have been a temporary effect since yields were not reduced in 1957 on these same plots.

On the plots with the higher fertilizer rates applied to the upper nine inches and with stunted stalk growth, the corn roots penetrated to 32 and 38 inches. On the check plot, they penetrated to 42 inches, and on all other plots studied, they penetrated to depths ranging between 48 and 64 inches.

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"Our 400 gallon Solar tank is easier to clean—inside and out—because it's so low. In a jiffy, every stainless steel surface glistens like new. And, there are no corners in a Solar tank to make cleaning a search and scrub chore. Also, our neighbors remark that pouring into such a low tank must be easier and faster, and they're right."

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EDITORIAL COMMENT

HOW TO USE TIMESAVERS

ONE of the great blessings of modern dairy farming is the availability of so much time-and-laborsaving equipment. Sometimes we wonder, however, whether purchases of such equipment truly provide the benefits which should accrue to the owner.

The important question is: How is the time saved used to expand farm income? If chore time saved is used to milk more cows or add another enterprise to the farm, then material benefits do accrue to the purchaser.

If laborsaving equipment permits operation of a farm with less hired labor, then there is a real financial advantage.

If, however, the time saved is used to merely expand the leisure time of the farm operator, then he should understand that he is, knowingly and willingly, paying a substantial price for that leisure. But that is his choice.

The point is that labor-and-timesaving equipment has great merit but it takes a good business or management head to realize the greatest possible financial gain from its purchase and use.

RESTAURANT MILK PRICES HIGH

THROUGHOUT the nation restaurant operators commonly charge 5 to 15 cents more for milk than for competing beverages such as coffee. A recent Oregon survey of four representative restaurants discloses that the higher prices charged for milk are not justified.

A careful analysis of costs shows the cost of milk per serving did not exceed that of coffee by more than 1¼ cents per guest served. In two of the restaurants the cost spread was .68 of a cent and 1.12 cents. The fourth restaurant served milk for about ½ cent less than the cost of serving coffee. The variation in costs was due mainly to the differences in the size of the average milk serving, which ranged from 5 to 7½ ounces.

We are particularly pleased that the Oregon investigators made this study. It confirms what we have long suspected, that milk suffers rank discrimination in pricing by too many restaurant and hotel operators.

Readers and milk distributors interested in securing the complete publication reporting the Oregon survey should ask for Miscellaneous Paper 59 from the Agricultural Experiment Station, Oregon State College, Corvallis, Oregon. The paper is entitled, "Comparative costs of serving coffee and milk in selected Oregon restaurants." The authors are Jerry Colburn and S. Kent Christensen.

In 1915, W. D. Hoard said:

Make a thorough study of your work. See what it means to the man who pays you for it and particularly what it means to the livestock you are ministering to every day. Cultivate a love for your work. If you hate your work you are cutting the ground from under your own feet.

Next, strive to do your work skillfully and efficiently. Don't do farm work by main strength but rather by main wit. Use your mind; exercise your power of observation and thinking. Keep your mind on your work. Don't let your thoughts wander, for if you do you will grow listless and careless in your work. The hands must constantly co-ordinate with the mind.

It is the mind that governs. There are a lot of misfits in this world. They have no mind for their work. Soon they go to the scrap heap. You can guide your mind in the right direction by making a study of your work. Then your hands will grow skillful and valuable to others and yourself.

BEST IN EDUCATION NEEDED

ENROLLMENT in agricultural courses at our colleges and universities has fallen off at an alarming rate during the past several years. Current interest in engineering, physics, and similar fields has made serious inroads on farm boys going to college.

A recent editorial in "Feedstuffs" magazine reported that of 4,433 graduating seniors of six major New England universities offering agricultural courses, only 33 majored in dairy husbandry. The situation is even worse in animal and poultry husbandry.

The editorial added, "This 2 per cent interest in productive agriculture by no means represents 2 per cent of all students in New England colleges. This is only 2 per cent in schools offering agricultural training and includes no count at all from such well-known institutions as Harvard, Yale, Dartmouth, Massachusetts Institute of Technology, and dozens of others which have no agriculture courses.

"Since there are some 81,000 farm families in New England, the yearly outturn of seniors at current rates affords no foundation for sustaining the present New England agricultural economy in the years ahead."

From visits we have had at many agricultural colleges throughout the country, the New England situation is fairly typical.

Even though our farm population is rapidly shrinking, those men operating the larger, more specialized farms of today need to be far better educated than ever before. Today the farmer, besides being a livestock or crops man, must have knowledge of bookkeeping, economics, agricultural engineering, soils, chemicals, marketing, and many other subjects if he hopes to be a successful operator.

With agriculture experiencing rapid technological growth, it appears that higher education is needed today more than ever before.

THE SHATTERED FARM BLOC

ONLY history will reveal whether the shattered Farm Bloc in Congress can ever be put back together again. Early in the current session every sign pointed toward a welding of commodity forces in the House and Senate.

In late June, however, the well laid plans were scattered to the four winds as the House of Representatives refused to even take up a recommended omnibus farm bill put together by the House Agriculture Committee.

What happened?

The entire story perhaps never will be completely told or recorded. For what it may be worth, here is the picture as we have seen it.

First, remember that the six basic commodities are corn, cotton, tobacco, rice, wheat, and peanuts. Note that most of these crop commodities are of vital importance to the South. Wheat and corn are of deep concern to the central part of the United States.

Southern Democrats, who control farm legislation, recognized that securing improved legislation for commodities in their area required some northern support. Hence, the omnibus farm bill approach came into favor. In essence, this was to be a massive log-rolling operation with each commodity scratching each other commodity's back.

Early in the session, however, as a stopgap measure, the Farm Bloc attempted to get through a simple extension of price supports at 1957 levels for the 1958 crop and commodity year. The proposed extension included another year at the $3.25-level for manufacturing milk.

But the executive branch of the government, controlled by the Republicans, had already gone on record against such an extension. It had recommended lowering price supports as a means of reducing the surplus.

Picture then the plight of Republican legislators from northern dairy areas. A veto of the price support extension was almost certain. While such a veto would serve as excellent campaign fodder for Democrats in rural areas, it would cause trouble, too, for northern Republicans with dairy farmer constituents.

In desperation, Republican legislators from northern dairy areas attempted to get through both houses of Congress another joint resolution which provided for the extension of dairy price supports alone. Should the President veto the all-commodity price support extension, he might compromise to the extent of continuing dairy price supports, and thus preserve Republican strength in northern dairy areas. The move failed, of course, as angry southern Democrats bitterly denounced the tactics and defeated the dairy bill.

The bitterness created early in this session was still in evidence as the House Agriculture Committee held hearings on the dairy self-help bill in May. Tempers were short. It was obvious that the committee, led and controlled by southern Democrats, would not approve a dairy bill sponsored by some northern dairy states Republicans.

After the first day of the hearings, a prominent southern Democrat asked a farm organization representative to draft, within a matter of hours, a "self-help" bill which could be used to replace the bill supported by the National Grange and the National Milk Producers Federation. It is only a testimony to the competence of the farm organization representative given such orders that the substitute bill was as soundly drafted as it was. But the handwriting was on the wall.

The southern Democrats were out to spank northern Republicans. They would not report out a bill supported by those dairy states Republicans. And so was reported out an omnibus farm bill with a dairy section which few dairy farmers or dairy leaders understood and, obviously, which few congressmen understood.

When the bill came to a vote on the floor of the House, city area Democrats and northern area dairy states Republicans killed it cold.

Meanwhile, the United States Senate has under consideration a farm bill tailored to the tastes of the American Farm Bureau and the administration. But this, too, faces rough going as a talkathon or filibuster is threatened because the bill contains no dairy provisions.

So the Farm Bloc lies shattered. Like Humpty-Dumpty, can it ever be put back together again? We believe the hour has grown very late. The combined voices of all farm commodities in Congress grow weaker as the farm population becomes a smaller proportion of the total population of the country.

Questions from Our Readers

Self-feeding haykeeper

I am interested in the plan you published some months ago for an upright storage for chopped hay.

I would like to hear the results of people who have used this system. The whole idea appeals to me, if the hay will settle down as it is being eaten.

North Carolina W. R. F.

We have had letters from several farmers in the eastern part of the country who have used the self-feeding haykeeper. They report that they have found it to work just as effectively as the farmers in Iowa have reported to us.

From the farmers with whom we have talked, we found that many are finding they are getting virtually 100 per cent self-feeding.

We do know that you cannot change the design of the haykeeper, with the exception of the height, and still get proper self-feeding. Many are finding that a theoretical length of cut for their chopped hay of 3 to 4 inches works best for self-feeding. Longer cuts hold together more, thus preventing the hay from feeding down 100 per cent. Shorter cuts feed down too readily, thus allowing wastage.

—Larry Van Fossen
Iowa State College

Discolored roof

I have a new arch rafter, aluminum-covered barn, built in November, 1956. It is showing pronounced darkening, especially below the lap joints or wherever weather strikes hardest (no discoloring inside the barn).

The manufacturer suggests it looks like manure fumes (ammonia, I presume). How can I ascertain the true cause of this darkening? What can I do about it?

The barn has lost its cleanlooking aluminum attractiveness.

Canada T. T. L.

The darkening of the aluminum roofs at the lap joint occurs on buildings that house animals and do not have free ventilation. The heated air carrying moisture and dust rises and escapes through the roofing sheet joint.

The discoloration is a combination of dirt and oxidation (called waterstaining) at that point. It is not harmful to the roofing material, but does affect the appearance. It can practically be removed using an abrasive wax cleaner or one of the phosphoric acid type cleaners.

If the lap joint could be made airtight (practically impossible), this would not occur. The easiest solution would be the addition of a ventilator at the roof ridge.

—H. H. Nuernberger

Mow in loafing shed

We would like to put an overhead mow in our loafing shed. The shed is 18 by 40 feet. The chopped straw will be 10 feet deep at the highest point.

Please tell me what size oak to use, spaced at what intervals, to support this straw.

We want to run them the 18-foot width, without any posts in the center.

Iowa E. A. J.

You will need 2 x 10's spaced 1 foot center to center. A row of bridging at the center of the span would be very desirable.

A good-quality 2 x 10 will hold 1,400 pounds uniformly loaded over an 18-foot span. If chopped straw weighing 8 pounds per cubic foot is stored to a depth of 10 feet, the unit load will be 80 pounds per square foot of floor area. This times 18 will give a load of 1,400 pounds per joist on a 1-foot spacing.

—D. W. Bates

Copper pipe corrosion

We evidently have an acid condition which corrodes our pipes including our copper pipes. Our water is not hard but we have seen some of our copper pipes corrode to a very thin shell and finally leak. We also experience rust and corrosion in our iron pipes.

Maryland O. S. A.

If you have an acid condition, a neutralizer may help. Another possibility is the polyphosphate feeder. Under some conditions these units are satisfactory for reducing corrosion.

You should have a sample of water tested to find out what type of treatment will be necessary. Usually your local plumbing dealer can arrange to have this test made.

There is a possibility that you have traces of salt water contaminating your well. If this is the case, a neutralizer or feeder won't help much so you should have the test made to determine if it will pay to install a unit.

Another problem which occurs with copper tubing when it is buried is electrical in nature. In many farm installations, the electrical system is grounded through the water system. This will not cause trouble ordinarily because there will be no current flowing to ground. If a leak in the electrical insulation of a motor should develop, then a current could flow to ground, which would prevent the possibility of receiving a shock when you touch the motor. While this arrangement prevents shock, it may cause corrosion of the copper tubing where the current is flowing to ground. If it appears that your water is not acid after you have it tested, then I would check the electrical grounds on your system and be sure that adequate ground rods are used in addition to the water system.

Occasionally another form of electric corrosion occurs where more than one type of metal is used in a system. This is a local battery-like action called electrolysis, which will cause the copper to be eaten away. Usually, this is most severe near the junction of a copper and an iron pipe. The inside of the copper pipe is apt to appear pitted as the corrosion usually won't affect all of the surface. This is much more severe in some cases than in others and will depend on what impurities are present in the water.

You also might consider the use of plastic pipe for underground runs, as this material seems to resist all type of corrosion. It may be the only solution to your problem if the corrosion is due to electrolysis. Most states now permit the use of plastic pipe but I would suggest you check with your state health authorities before you install it to be sure you will comply with any state regulations which are in force.

—G. P. Barrington

Canary grass in berries

Please tell me what to do to kill canary grass. I have it in my grapes and raspberries so I want something that will kill the grass but not harm the berries.

Wisconsin A. B.

Canary grass and quack grass, once they are started, are very difficult to control in raspberries and grapes. The best procedure is to eliminate the weeds from the planting before the raspberries and grapes are established and then keep the grass in check. Both canary and quack grass are quite susceptible to the chemical, dalapon. However, you must be very careful in using dalapon. Be certain not to spray it on the vines or on the raspberries. You might notice a little injury to raspberries, but they will rapidly grow out of it and you can reduce the population of quack grass with this chemical.

I might offer one other suggestion and that is the use of a slowly-decaying mulch such as wood chips which are quite often found where power companies or road crews have chopped brush alongside the road, or if you are near a woodworking plant, the shavings that can be easily obtained there make an excellent mulch. This will smother the grass but will allow the raspberry canes to come through. Actually, it does an excellent job of reducing canary grass and quack grass populations.

—G. C. Klingbeil

Pond water for drinking

I am interested in converting my large new pond into house water use for a family of five. We were very much interested in your February 25 issue that contained the article on how to purify water.

This is the type we want, but it is the first time we have seen a picture of it. Could you give us information on where to get the filter and what size it would take and what the price would be?

Believe we could use our present pressure pump as the pond is 15 feet lower than the house.

Kansas C. N.

The problem of conditioning pond water is, as the article indicated, somewhat difficult. As a minimum, you should probably have a filter with a sand bed, a storage reservoir, and chlorination equipment.

The filter and storage reservoir usually are constructed of cast concrete and built near the pond. Also, it is possible to utilize gravity flow from the pond through the filter and into the storage reservoir. The water is then pumped to the buildings.

If you use a reservoir, the chlorine is added to the water in the reservoir. In some cases, it may be added to the water entering the pressure tank as was shown in the illustration in the article in Hoard's Dairyman. Wherever the chlorine is added, you should be sure that free chlorine is present in the water at the faucet. A daily test is recommended. You should buy a test set when you purchase the chlorinator.

In Wisconsin, we use very few filters and, therefore, I don't keep a supply of plans for constructing them. The agricultural engineering departments of Kansas State College, Manhattan, Kans., and the University of Missouri, Columbia, Mo., have published plans for building this equipment. I am sure you could obtain a copy of these plans by writing for them.

In the matter of a chlorinator, I would suggest you write the Board of Health Department of your state and ask which units have been approved in your state. The regulations as to the use of these units vary considerably from state to state.

It is particularly important to comply with your State Board of Health regulations if you expect to sell fluid milk from your farm. Most milk markets require the producer to have a water supply which meets the local state codes.

—G. P. Barrington
University of Wisconsin

". . . and so Amos bought that broken-down Angus, but when Clem got stuck with that litter of pigs . . ."

". . . no, Ed still isn't speaking to them . . . party line!"

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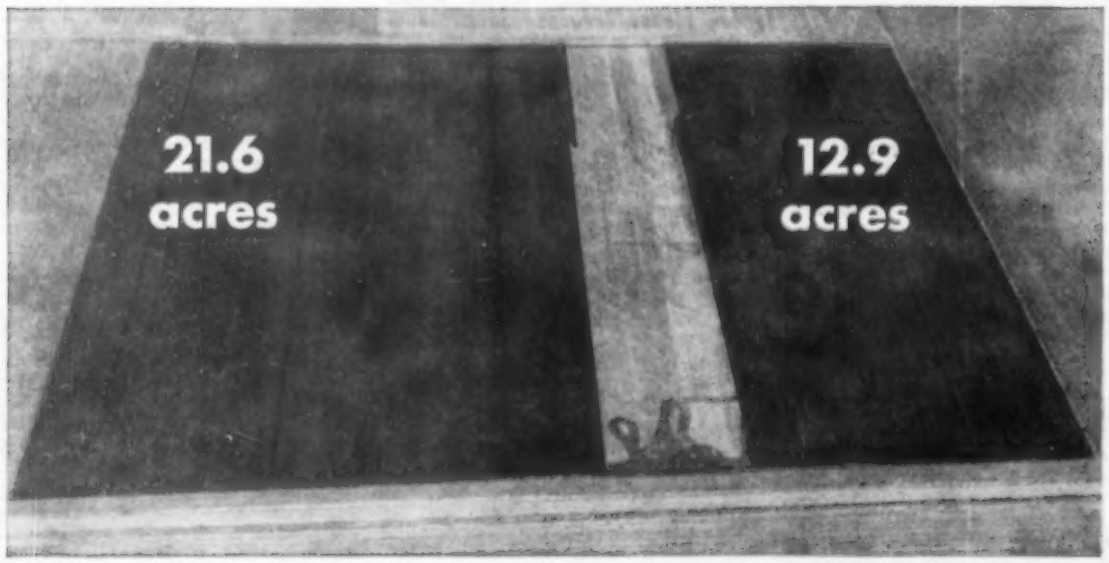

Actual photograph after 8 hours of plowing.

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Is your farm shop safe?

(Continued from page 767)

of the year and the heat will very likely be an open flame of some type as in an oil or gas burner. Any source of heat presents a fire hazard, especially with fumes of gasoline present.

Every shop should be equipped with some type of fire protection. Pails of good dry sand are excellent in putting out grease fires. A five-gallon pump can filled with water also will prove valuable. If the shop freezes at times, the water can be treated with either salt or calcium chloride. A fire extinguisher located near the door and properly marked will also add to safety from fire damage.

The fumes of gasoline present a very serious fire and explosion problem in a closed building. The gasoline code requires that farm gasoline be stored away from other farm buildings. Any gasoline brought into a farm shop should be contained in a can well marked, and it certainly is advisable where possible, to leave gasoline out of the shop entirely, except as it is contained in the tanks of the truck or tractor being serviced.

Be sure that brain is engaged before putting mouth in gear.

One precaution that should be followed very carefully is to use only regular solvents for the cleaning of parts in a shop. Gasoline should never be used for this purpose, as it presents a tremendous hazard. Solvents are available on the market, and they do a better job, as well as being safer.

In a quick check of our shop, we may discover some unguarded V-belts and gears that could cost a finger, a frayed extension cord, a littered floor or some burred chisels; even a man working under a tractor with unsafe blocking.

It's not only the condition of the shop, but also good sound judgment that will make it a safe place to work.

Mechanized farming is here to stay, but the accidents with tractors that cost hundreds of farmers their lives each year need not be part of the picture. **THE END**

National Clipping Contest

The third national Jersey clipping contest was held at the Plainview Jersey Farm, Louisville, Ky., June 3, in conjunction with the annual meeting.

F.F.A. and 4-H club members from many states competed in this contest. David W. Spahr, a 4-H club boy from Findlay, Ohio, won first place for the second straight year. He was awarded a gold watch.

Bull proofs and indexes . . .

(Continued from page 763)

dams, but otherwise is calculated the same as the E.P.I.

EXAMPLE: Bull (Pride)

Daus.	11,624M x 2 =23,248	3.8% x 2 =7.6	
Dams	11,624M x =11,394	3.5	3.5
	11,854		4.1

11,854 x 4.1 =486 lbs. fat (American Index)

Regression Index. In order to avoid the pitfalls of the Equal Parent or American Index, Dr. V. A. Rice has developed the Regression Index. It is based on the premise that production records are determined, only in part, by hereditary factors. There is a tendency for offspring of high-producing dams to be lower, and for offspring of low-producing dams to be higher than their dams. In other words, all tend to move or regress toward an average.

For dairy cattle production figures, this regression of daughter average is roughly .5. This means that generally the offspring will regress halfway back to the breed average. Therefore, if a cow produces 4,000 pounds of milk above the breed average, one should not expect this cow's daughter to inherit production more than 2,000 pounds above the average.

The Regression Index may be computed from Equal Parent Index by regressing it halfway to the breed average. In using the Regression Index, it is possible to either regress to an individual herd average, to the average production for cows in a state, or to a breed average. The Regression Index is computed as follows:

Daus.	11,624 x 2 =23,248	442 x 2 =884	
Dams	11,394	403	
	E.P.I. for milk 11,854	E.P.I. for fat 481	

The Nebraska state mature equivalent three-year D.H.I.A. (1955, 1956, 1957) average is 411.3 pounds of butterfat. Let us assume that all Nebraska cows enrolled in Dairy Herd Improvement Associations are one large herd. The three-year actual production for this herd is 373 pounds of butterfat. In this herd are cows of different ages and different breeds. Because of this variation, we arrived at a conversion factor of 110.26.

Therefore, if the actual production is multiplied by the conversion factor, a mature equivalent production for the herd is secured (373 × 110.26 = 411.3). According to the Regression Index, to determine what a daughter, from an average cow in this herd, sired by Pride, would produce, we would proceed as follows:

$$\frac{481 \text{ E.P.I.} = 240.5}{2} \qquad \frac{411.3 \text{ State Average} = 205.6}{2}$$

240.5 + 205.6 =446.1 lbs. fat (Regression Index)

Stated simply, this means that this bull, when mated to Nebraska D.H.I.A. cows, should have offspring that average 446.1 pounds of butterfat, if the conditions under which they are handled are the same as were the daughters.

Gifford Index. This index is named after its author, Dr. Warren Gifford, of Arkansas. It is the simple arithmetic average of the M.E. records of all the daughters of a sire. This index is used by the American Jersey Cattle Club for rating Superior and Senior Superior Sires.

The Gifford Index or daughter average is often used, but seldom referred to by name. It is supposed to be a figure which indicates what a future group of daughters will do, if the sire is mated to cows with transmitting ability similar to the first dams and if given the same opportunity to produce.

Other indexes have been devised which are slightly in variance with the above mentioned group.

1. Bull proofs and indexes are attempts to evaluate a sire's transmitting qualities.

2. Until such time as there is an accurate measurement of environment and its effects, a breeder must use good judgment and much study before he decides what they mean. He must study them in a completely unprejudiced manner.

3. Any figure based on a selected group will mean very little.

4. While proved bulls have many advantages over unproven bulls, it has been shown they are no more reliable than carefully selected young bulls. The proved bull was once young and unproved.

5. Note carefully in the previous illustrations, with the bull "Pride," how different interpretations can be given to the same sire by using different methods of figuring.

THE END

Folck Classic

On May 31, at the Folck Farm, Springfield, Ohio, the 31st annual Folck Classic Sale was held. High-spirited bidding was reflected in the average of $1,554.72 for the 53 head.

Mister Jester Pinn became the highest-priced American-bred Jersey bull ever sold at auction, when C. Grier Beam, Sunbeam Farms, Cherryville, N. C., purchased this Excellent Senior Superior Sire for $20,000. Max Bachelor, Angola, Ind., was the consignor.

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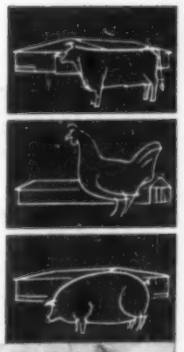

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		35 cows, one month	2.50

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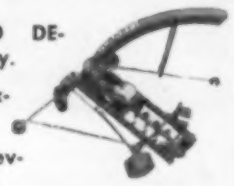

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SWINE

by F. J. Giesler

To improve your swine enterprise . . .

. . . select meat-type gilts, a boar from a certified litter, and pay special attention to lowering feed costs.

IF WE were to visit your farms today, no doubt, we would find that many of you have kept abreast of the changing times, that you have studied your hog program, and have taken steps to improve your income. But there are still farms where some good planning could double the income from the swine enterprise.

If your sow herd is old fashioned, now is the time to sort out some trim, meat-type gilts to start working for you.

Look into the records. Select the gilts for litter size, large number of pigs raised to good litter weights, and rapid gains up to market weights. These gilts should be removed from the finishing pen weighing around 100 to 125 pounds in weight and grown out well to become the future sows in your breeding herd.

All too often, the fast-maturing gilts that have these excellent meat-type qualities go to market in the first group. You can improve your sow herd a great deal by taking a little time to sort out these trim, well-muscled gilts and grow them out well before the breeding season.

For self feeding these gilts, a good ration would consist of 30 pounds of ground corn, 30 pounds of ground oats or other small grain, 30 pounds of ground alfalfa hay, 5 pounds of meat scraps, 5 pounds of soybean oil meal, and .5 of a pound of trace mineralized salt.

May be used for boars . . .

This ration may also be used to grow out the young boars. It should be fed at the rate of 1.5 pounds of mixture for each 100 pounds of live weight. The alfalfa in the ration may be increased or decreased to control condition of gilts or boars.

By selecting high-quality gilts, you will get more desirable market hogs and realize higher returns.

Be sure your boar is a muscular individual and has a few records to back up his probable ability to transmit desirable qualities to his offspring.

Don't hesitate to buy a good meat-type boar, preferably one from a certified litter or from a breeder who has been putting entries in a boar testing station to show rate of gain, feed efficiency, and carcass cut-out value on litter mate barrows. Like the gilts, he should come from a large litter.

Quite a number of you producers today are following the practice of multiple farrowing. Since you will find timing is highly important in this program, you will want to get your boar far enough ahead of regular breeding time to check on a sow or two to make sure that he isn't a non-breeder.

Buying a boar well in advance also gives you a chance to make sure that your herd sire is free from brucellosis or leptospirosis.

On some of your farms, I know that you buy two young boars at a time and try them out on several market gilts weighing 170 to 180 pounds. This is a very desirable practice because then you will know well ahead of time that your boars will be in breeding condition when it comes time to breed your sows.

Watch feed costs . . .

Your feed accounts for 75 to 80 per cent of the total cost in swine production. A few cents savings in feed costs can be a big over-all saving in cost of production.

The protein feed which you buy is the most costly single ingredient used in your hog ration. Recommended levels of protein today are 20 per cent for pigs up to 40 pounds, 16 per cent for pigs from 40 to 75 pounds, 14 per cent for pigs from 75 to 125 pounds, and 12 per cent for pigs over 125 pounds.

With $1.25 per bushel corn and $6 to $7 per 100 for protein concentrate, you are going to have $15 to $20 in each 200-pound pig.

If the hog market is around $18 to $20 per hundred, that would give you a return of $36 to $40 per hog, or a margin of not more than $16 to $20 over feed costs for each hog you produce. This is not clear profit because you will need to include the cost of housing, breeding stock, and veterinary service. Do not forget that the rest will be figured in terms of labor income for your hog enterprise.

Good management on your part will largely determine whether the return per hour for your labor will be a few cents or a few dollars.

Only by keeping more accurate records on feed conversion in terms of the amount of feed it takes to produce a 100-pound gain will we ever find out just what our hog enterprise is doing for us.

Maryland wins again

Maryland's 4-H dairy judging team has won the International 4-H Dairy Cattle Judging Contest for the sixth time. At the Royal Livestock Show held in Bristol, England, the Maryland group scored 1,237 points to top Scotland (1,216) and Wales (1,152).

Howard Stiles of the winning Maryland team was high individual with a score of 328. Other members of the team were Roberta Messer, who ranked fifth; James Hill, seventh; and Jerry Ensor, fourteenth.

This is the 11th year Maryland 4-H dairy teams have competed in England. Team coaches were John Morris, University of Maryland extension dairy specialist, and M. Gist Welling, assistant county agent.

Following the contest, held early in July, the group visited the islands of Guernsey and Jersey, the World's Fair at Brussels, Denmark, and The Netherlands, as well as other points of interest.

Crossbreeding study

ADDITIONAL information on whether crossbreeding of dairy cattle can usefully serve the nation's dairy industry is the goal of a study just begun by U. S. Department of Agriculture dairy scientists at the Agricultural Research Center, Beltsville, Md.

The long-range project will compare purebred Brown Swiss, Ayrshire, and Holstein cows to crosses of the same breeds. The test matings have been planned so that two- and three-way crosses can be compared in the same generation.

Results of the trials will be evaluated on the basis of milk production, butterfat content of the milk, solids-not-fat production, breeding characteristics, birth weight, growth rate of calves, and feed efficiency.

The Holstein, Ayrshire, and Brown Swiss breeds were selected for this trial because of their similarity in milk production. Forty heifers from each of the three breeds were purchased from widely separated sources in order to get the greatest possible variety of pedigrees.

All heifers are from herds with production levels **equal to or better than breed averages** and out of dams with similar records. The average production of dams of selected Ayrshire heifers was 10,792 pounds of milk containing 4.06 per cent butterfat. The Brown Swiss dams averaged 11,780 pounds of 4.24 per cent milk, and the Holstein dams averaged 13,750 pounds of 3.64 per cent milk.

Three progeny-tested sires of each breed, chosen at random from sires in artificial breeding association studs, will be used in the matings. Different sires will be used each year.

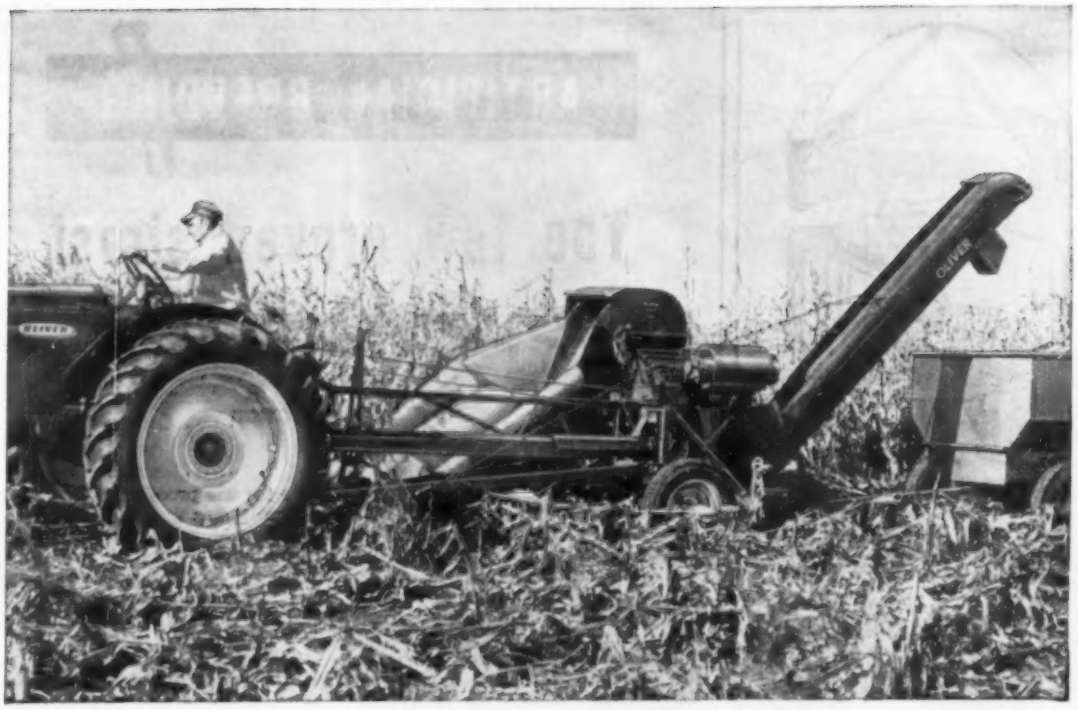
The 40 foundation heifers of each breed have been divided into 4 equal groups of 10 animals. Group 1 will be mated to bulls of the same breed and will serve as controls. Group 2 will be mated the same as Group 1, but the first-generation offspring will be split into two groups and bred to bulls of the other breeds. Group 3 will be mated to bulls of one of the other two breeds. Group 4 will be bred to bulls of the remaining breed.

Foundation cows will be rotated from group to group each year.

Group 3 and 4 progeny will be mated to bulls of the breed not represented in their cross to produce three-way crosses in the second generation. By this system, purebreds, crossbreds, and three-way crosses will be produced in each second generation.

In order to handle as many animals as possible, and to evaluate them under farm conditions, project females will be loaned to cooperating farmers. However, they will not go into farm herds until they have completed one acceptable production record at Beltsville. Matings will continue at the farms with female calves returning to research center for first-year testing.

"Did you call me, dear?"



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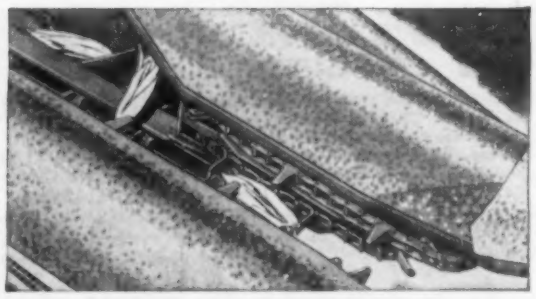
No escape for lodged stalks, low ears! The "floating snout" seeks them out...the gathering chains work right down to the ground. Then Oliver's live points trap every ear, spiral it straight into the picker.



YOU SAVE CORN HERE

Sway-back elevator extends far forward. Once the ears are snapped—*zip*—direct to the elevator. They don't linger on the snapping rolls, to be shelled out in the field. No "stop" time: rolls adjust from tractor seat.

AND YOU SAVE CORN HERE!

An extra-long husking box. Efficient "valley" design. Matched steel and rubber rolls. These mean cleaner corn, faster drying, better pay. Full-length corn-saver below box captures every kernel for your wagon.

There it is—as simple as one, two, three! With an Oliver picker, you bring in more corn to start with ...you save a lot more of it...and you deliver it to your wagon as clean as a whistle.

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ARTIFICIAL BREEDING

Too few proved sires!

Only 19 of every 100 sires that were reported proved in D.H.I.A. are available for selection.

by H. A. Herman

THERE is a need for more sire proving in America. There perhaps has never been an oversupply of dependable proved sires and we doubt if there ever will be. The scarcity of proved sires which can furnish high-producing daughters with desirable conformation and other characteristics dairymen are seeking presents an increasingly acute problem for many bull studs.

Our D.H.I.A. testing and sire-proving program in U.S.D.A. reported 5,265 bulls whose proved-sire records became available in 1957. This is an imposing figure. Even if 50 per cent of these proved sires raised production and were available, we could replace our "national bull stud" every year so far as artificial breeding goes.

Last year we had 2,676 bulls in use in artificial breeding. Some 256 were beef sires so only 2,420 dairy bulls were in use and 1,074, or about 41 per cent of the total, were D.H.I.A. proved sires.

Why don't we have more proved sires available? Here's what happened to the 5,265 sires reported as proved in 1957:

1,016, or 19 per cent, were alive when proof was completed. These were available!

2,768, or 51 per cent, were dead when final proof on five daughter-dam pairs became available.

1,571, or 30 per cent, were not reported. These were dead; the owners didn't go to the trouble to reply, or the bull may have been a disappointment and the owner wanted to forget him.

Living sires proved highest . . .

That many dairymen who are doing D.H.I.A. testing take a real interest in sire proving is evidenced by the proof on the living bulls.

1. **The living sires** (19 per cent) produced daughters averaging 10,692 pounds milk, 451 pounds butterfat. This was an increase of 291 pounds milk and 18 pounds butterfat over their dams.

2. **The dead sires** (51 per cent) produced daughters averaging 10,199 pounds milk and 414 pounds fat; 208 pounds of milk and 3 pounds less fat than their dams. Evidently many of these "dead bulls" went to the butcher as soon as the owners found their daughters weren't producing satisfactorily. This is as it should be. In most cases we doubt if many genetically superior sires are sacrificed by this culling process.

3. **The not reported sires** (30 per cent) were the poorest of the lot. Their daughters averaged only 9,884 pounds milk and 410 pounds butterfat. This was a decrease of 267 pounds milk and 6 pounds butterfat below their dams. All records are quoted on a 305-day, 2x milking, mature equivalent basis.

We believe the fact that the living sires have the highest average production on their daughters is no accident. Many factors are responsible for the proof of a sire attains; evidently this group of sires are:

1. Owned by dairymen who are "proved-sire-minded." The promising sire is recognized early, his daughters given an opportunity, and the health and future of the bull protected.

2. These dairymen see that production records are sent to the state extension dairyman and thence to Washington, D. C. (U.S.D.A.), so the records can be compiled as early as possible. Only about two-thirds of the D.H.I.A. records furnished are properly reported so they may be used in sire proving.

The result is a healthy proved sire between 6 and 9 years of age. He is usually valuable property and can contribute to the herd where proved, or be sold at a desirable price.

Selection limited . . .

The plain facts are that our combined D.H.I.A. testing and breed registry testing programs are not turning out enough good proved bulls to permit selection in the top production levels. This is no fault of the testing programs themselves, **but a serious indictment of many breeders who fail to use these programs.**

It is obvious that, in the absence of production records on a bull's progeny if he is mature — and on his ancestors if a young sire, the artificial breeding program must ignore him.

With about one of every five proved bulls alive when reported, the field of selection narrows fast. Of the 1,016 bulls reported in 1957, most will not be eligible for artificial breeding organizations because:

1. Roughly, 40 per cent will not meet production requirements.

2. Some will be low in fertility and not produce satisfactory semen. This is usually about 30 per cent of the total.

3. After elimination on points 1 and 2 we have about 304 of the 1,016 proved sires left as possibilities for artificial breeding if eliminations are taken care of. This is not the case, however, because only

"Mr. Gibbs, about the pole construction of your new barn . . ."

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Why gamble? Flexible BAG BALM Teat Dilators give fast, sure relief, LAST LONGER, hold milk duct in shape for correct healing. 25 Dilators in each box —brimful of famous, medicated Bag Balm ointment. Fluted flexible Dilator carries Bag Balm into teat. Be wise. Bag Balm Teat Dilators will not snag or come apart. Insist on BAG BALM Teat DILATORS. At your Dealer's.

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Lyndonville 69, Vermont
BAG BALM Teat DILATORS

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the major eliminations have been made.

Here are additional factors that reduce the number of proved bulls available or at least discourage artificial breeding organizations from buying them:

1. Failure to pass satisfactory health tests.
2. Too old to be a good risk at price asked.
3. Crippled or in bad physical condition.
4. Of poor type and will drive business away by appearance.
5. Bloodlines don't appeal. Usually a local problem.
6. Owner of doubtful integrity as a breeder. (No bull stud will "buck" this one.)
7. Questions on freedom from inherited defects.
8. Owner simply doesn't care to sell bull. In some cases may lease or permit semen to be frozen and purchased.
9. Inadequate records on total progeny and amount of selection practiced not clear.
10. Difficulties encountered in evaluating environment under which daughters were tested as compared to dams and even former herd averages.

Thus, the proved sire that finally enters a bull stud undergoes a series of hurdles. It is no wonder that probably less than 25 per cent of the sires available for sale as proved bulls pass muster. These sires must meet rigid standards for production and type of their progeny. They must be healthy. The patrons of the organization in which a bull is used must have confidence in him, or he goes begging.

In America we are now testing only about 1½ million cows. More than 20 million cows reported as "milk cows" have no production records. Nine out of 10 dairymen in the United States are not keeping records on their herds or individual cows.

Lack of progress in sire proving limits progress in general improvement of our milking herds. Every proved sire is not the kind to be used on an average of 3,000 to 8,000 cows annually. Only a small percentage of all proved sires are entitled to such confidence.

More testing needed . . .

Our dairymen and our purebred breeders today have an opportunity, through more testing, both breed association tests and D.H.I.A. testing, to prove and develop the sires that will shape our cows of the future and determine to a marked degree the success of the man who milks them.

A man who was suing over an automobile accident was being questioned very carefully by the defendant's lawyer.

"Did you, or did you not, at the time of the accident when asked if you were hurt, reply that you weren't?"

"I did," said the plaintiff, "but it was like this: I was driving along the road with my old horses and wagon when along comes this fellow and knocks us into the ditch. You never saw such a mess in all your life.

"There I was flat on my back with my legs in the air. And there was my horse on his back, with his legs in the air.

"This motorist gets out of his car and looks at us. He sees my horse has a broken leg. He goes back to his car, gets his gun, and shoots him. Then he turns to me still lying there and says, 'Now, what about you? Are you hurt?' "

HITCH MOUNTED ON COMBINE saves time and gas. It eliminates an extra man and tractor and makes non-stop combining practical.

Save time with combine hitch

by Donald K. O'Brien

YOU don't have to stop except to change wagons when you use this hitch to pull the grain wagon along with the combine.

Hitch was built from an old corn planter, with a few welded changes, and mounted on side of combine. It folds up so combine can pass through narrow gates.

It saves both time and gas. The combine hopper is emptied while the whole outfit is on the move. When the wagon is full you just have to stop long enough to hitch on another wagon.

The man on the other tractor unloads the wagons and is back with an empty by the time the one on the combine is full. This hitch saves an extra man and tractor and makes non-stop combining practical. Two men can do the combining and put the crop into storage, stopping only to change wagons.

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MAES A-S Medium

IT WILL PAY YOU TO SEND THIS COUPON NOW!

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I enclose $_____ for Maes A-S Large_____Maes A-S Medium_____ Inflations, at 85¢ each, for use on my Surge milkers. (On orders of less than $6.00, add 25¢ for postage.)

Name_____

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City_____State_____

No. Cows Milked_____Breed of Cows_____No. Surge Units_____

I understand you will send my Maes Inflations postpaid if my order is for $6.00 or over. If the inflations do not satisfy in every respect, I may return them undamaged, within 30 days and receive my money back.

How to farm sandy soil

(Continued from page 766)

It has been found possible to supply enough nitrogen in this way to greatly increase the yield of corn. When corn was planted on this sandy soil following legumes there was an increase of 9 to 33 bushels per acre over the corn that did not follow legumes.

Legumes increase yields . . .

Vetch and sweet clover have given increases of about 30 bushels of corn per acre. On unlimed land vetch gave higher increases on corn than did sweet clover, but on limed land the sweet clover was as good or slightly more effective than the vetch. Vetch will make good growth on this sand without soil treatment, but sweet clover is a failure where the soil is not limed.

In addition to the increased yield of corn, there was also an increase in the per cent protein in the grain. Thus, growing corn on the land after legumes not only gave more bushels but higher quality animal feed. The corn after sweet clover in 1953 was increased 47.6 bushels per acre and the protein content of the grain was over 50 per cent higher than where no legume was grown. Farmers in the region of this experimental field are already seeding large acreages of vetch. Nearly all rye seedings now have vetch as a companion crop. These plants together make excellent pasture in late fall and early spring.

Vetch is a winter annual and it is usually seeded with rye on sandy land. It makes its growth at about the time rye does and they can be harvested together. The two not only provide good pasture, but they can be cut for hay or silage, or they may be allowed to mature and then combined for seed. If desirable, the rye and vetch seed can be separated by running the mixture through a spiral separator.

Alfalfa is another excellent legume crop for sands. The soil on the Pierce farm requires lime and phosphate for alfalfa. Care must be taken in seeding, to get the crop up and started without having windblown sand damage the young plants. It is well to have a covering of residue on the surface to protect the plants until they get up far enough to cover the soil.

Grasses hold sand . . .

Some farmers may want to put some of their sandy land down to permanent grass. This is a good method of holding the sand against blowing and some grasses produce good yields of forage on such soils. The kind of grass to use will vary with the location, but in Nebraska, sand-lovegrass or switchgrass are hardy grasses and have made good growth on this relatively thin sand. The growth, however, has been greatly increased by the use of nitrogen fertilizers and in some eroded areas phosphate has been necessary to give the most luxuriant growth of grass.

In wet areas, Reed's canary grass may make excellent growth and produce good yields of pasture or hay. On this experimental farm in some low-lying areas, Kentucky bluegrass has come in and now is almost a full stand. If this grass is fertilized with nitrogen it gives a large amount of early pasture. Moreover, in some seasons it has produced a seed crop that was about the most valuable of any crop on the farm.

Leave residue on surface . . .

Sands are subject to severe wind erosion whenever exposed in a bare condition. This difficulty can be avoided if the tillage is done with implements that leave the crop residue on the surface.

This does not require any more in the way of equipment than is normally found on an average farm. There are certain tools, however, that are essential to this type of farming. One is some sort of tiller that can be used instead of a plow. This tiller must not turn the soil completely over or bury the residue. Sands need only to be loosened to put the soil in condition for planting. Weed eradication, of course, is important. A subsurface tiller (a large sweep) can be used satisfactorily for tillage.

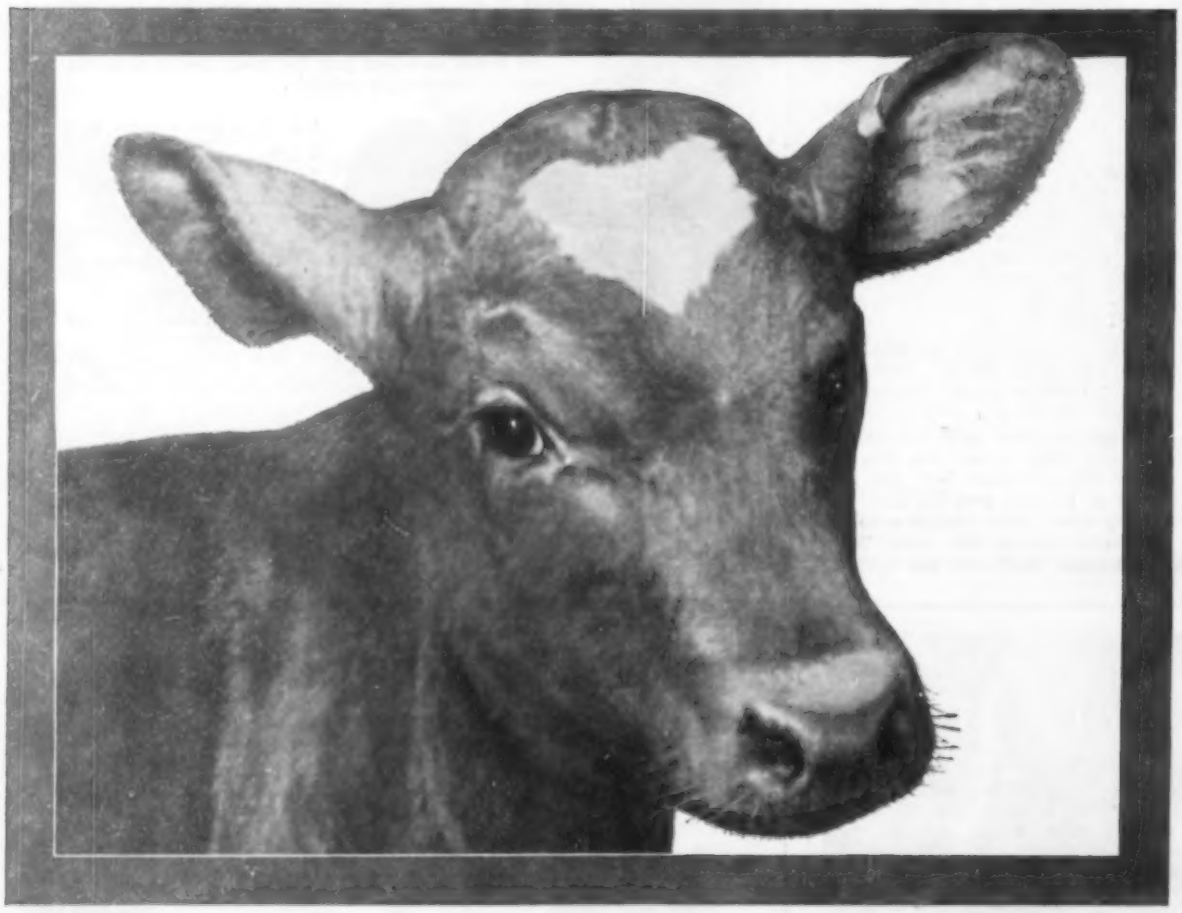
In addition to this, some sort of packer is valuable for completing preparation of the seedbed. A rotary treader works well.

Small grain can be drilled with most disks or shoe drills. Row crops can be planted with a standard lister run shallow, or better, a lister with narrow moldboards. By using this implement a clean furrow can be made in which to plant the seed and a large part of the residue will be left on the surface between the rows. This prevents sand movement which would fill furrows and cover young plants.

The row crop can then be cultivated in a manner to leave most of the residue on the surface. This can be accomplished by using a cultivator equipped with rather wide sweep-type shovels.

Sandy land may be used for either a grain and hay type farming or as a livestock farm. If used for livestock, care must be taken that crops are not overgrazed. This may expose the sand to severe wind erosion. If used as a grain and hay farm, sufficient stubble or other residue must be left on the soil to protect the land. **THE END**

Employer: "What can you do?"
Boy: "Anything, sir!"
Employer: "Can you wheel a wheelbarrow full of smoke?"
Boy: "Certainly, sir, if you can fill it."



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Now with 10-28 Super Calf-Kit you can follow a *higher* energy feeding program with greater economy and complete safety. Extensive on-the-farm research proves that calves fed on 10-28 Super Calf-Kit get off to a stronger start during the vital first two weeks. Moreover, 10-28 Super Calf-Kit improves their average daily gain during the entire milk replacer feeding period.

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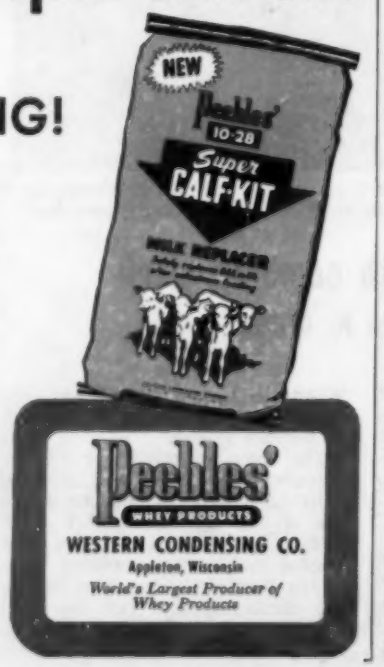
So if you're getting $2.50 per cwt. or more for your fresh milk, sell it all and be money ahead two ways. New 10-28 Super Calf-Kit will lower your feeding costs and give you stronger, healthier calves. Buy it from your regular feed dealer.



BORDEN AWARD winner was Dr. J. L. Lush at the right. He is being congratulated by J. H. Erb of Borden Company Foundation.

A.F.M.A. AWARD winner was Dr. Charles Lassiter, right. At the left is W. T. Diamond, Secretary of American Feed Manufacturers.

Record A.D.S.A. meeting

WITH 1,745 registrations, an all-time attendance record was established at the 53rd annual meeting of the American Dairy Science Association held at Raleigh, N. C., in June. Dr. K. L. Turk, Cornell University, was elected to succeed Dr. D. V. Josephson, Pennsylvania State University, as president.

Eighty-one papers were presented before the manufacturing section and 132 before the production and extension sections.

Dr. Jay L. Lush, professor of animal breeding at Iowa State College since 1930, received the 1958 Borden Award in Dairy Production. Dr. Lush, who holds degrees from Kansas State College and the University of Wisconsin, was cited for contributions to dairy research over a 40-year period. Author of the widely known textbook, "Animal Breeding Plans," he has lectured in Brazil and India; was awarded an honorary doctorate at the Royal Agricultural College of Sweden, and another by the University of Giessen.

Dr. W. James Harper of the dairy technology department, Ohio State University, received the Borden Award in Dairy Manufacturing. He holds degrees from Purdue and the University of Wisconsin.

Winner of the American Feed Manufacturers Award was Dr. Charles A. Lassiter, professor of dairy husbandry at Michigan State University. He holds degrees from the University of Kentucky and Michigan State University. His research in the areas of antibiotics for calves and the value of certain feeds and feed substances in calf starters is well known.

Dr. H. O. Henderson, for many years head of the dairy husbandry department at West Virginia University, was given the Teaching Award in Dairy Production. A native of Pennsylvania, Dr. Henderson is a graduate of Pennsylvania State University and the University of Wisconsin. He has been a member of the West Virginia staff since 1916. His book, "Dairy Cattle Feeding and Management," is widely used as a college textbook.

The De Laval Extension Dairyman Award was received by Lyman H. Rich, extension dairyman and professor of dairy husbandry at Utah State Agricultural College. A native of Idaho, Rich has served in his present capacity 22 years. Previously he spent more than 10 years as a Utah county agent. He holds degrees from Utah and Minnesota. He was instrumental in setting up the first system for handling D.H.I.A. records using IBM equipment.

The 1958 Honorary Membership Award was presented to Dr. A. C. Dahlberg, professor of dairy industry at Cornell University since 1943. A Wisconsin native, Dr. Dahlberg holds degrees from Minnesota and Illinois, and has served the dairy industry for some 43 years. Dr. Dahlberg was the recipient of the Borden Award for Dairy Manufacturing in 1944.

Next year's meeting will be held at the University of Illinois, June 15 to 17.

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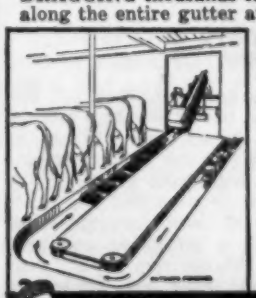

REMOVE LIQUID MANURE

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Protect Dairy Cattle from Flies!

Tests at the U. of Illinois proved that when the average dairy cow was shielded from biting flies in the pasture with new

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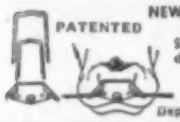
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NEW EDMING COMBINATION CALF OR COW WEANER
Satisfaction guaranteed. At dealers or direct. Prepaid, 75c each, 3 for $2.
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Solid brass tags and brass-plated chain

No. 21—FOR NECK. Case-hardened chain. Tag numbered both sides. $13.25 per dozen delivered.
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No. 38—DOUBLE PLATE NECK MARKER. Combination strap webbing and heavy chain, two marker plates. $14.50 per dozen delivered.
Write for catalog. Sample mailed for $1.00.
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HANDY HINTS

REAR VIEW MIRROR

To get better control of your tractor and have fewer stiff necks when combining, plowing or other jobs, use a large, good-sized rear view mirror.

Illinois C. F. MARLEY

HOGS WON'T FIGHT

When I have to put strange hogs together in one pen, I smear them with a little used oil. The oil destroys the odor and prevents the pigs from fighting. A brush can be used to apply the oil.

Missouri L. DAVIS

MARK DRIVEWAY

Here is an attractive way to mark the sides of a driveway so you won't ruin the tires of your car by striking the sharp edge of the culvert.

Take that worn-out tractor tire; cut it in half and paint it white. Then outline the threads or lugs in solid black or red paint. If painted in this way, the tire will stand out at night when headlights strike it.

Wisconsin WALLY E. SCHULZ

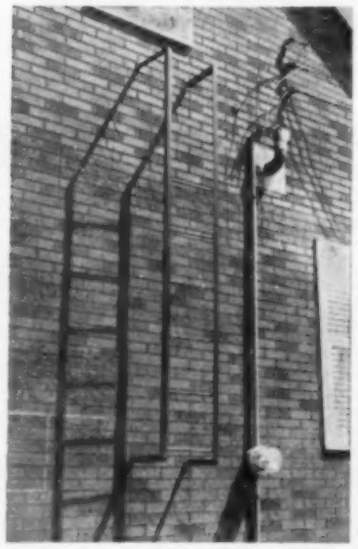
KEEPS HITCHES OUT OF MUD

To keep trailer hitches off the ground and out of the dirt, bolt or weld a U-shaped piece of iron on the bottom of the trailer tongue. A curved tooth from a springtooth harrow can be used, but any similar piece of metal would work. This forms a little sled and prevents the tongue from jabbing into the ground when the trailer is moved by hand. It also keeps the hitch parts out of the dirt.

When pulling a trailer behind a car, you can pass a chain through this loop for extra safety.

Iowa HAROLD NEWBERG

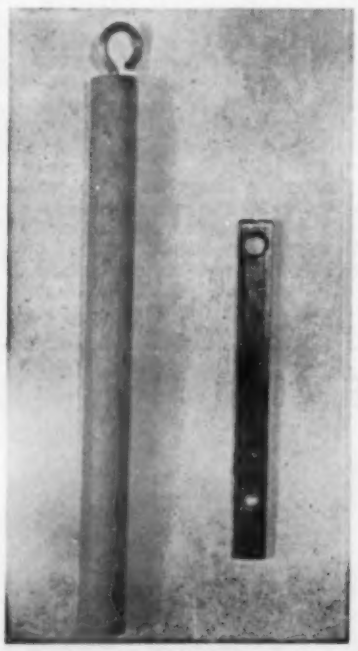
METAL FIRE ESCAPE



This is a simply-made fire escape, a steel ladder made out of angle iron with the help of an electric welder. It is securely fastened to the wall of this Illinois farm house. It gives easy escape from two upstairs bedrooms in the event of a fire. The ladder is unobtrusive and gives an added safety margin on a frame house.

Illinois GROVER BRINKMAN

WIRE TIGHTENERS



Here are two methods of making a gadget that will help when working on wire fences, or in splicing wires.

One is simply a door latch with a hole bored in it large enough to accommodate fence wires. The other is a piece of dowel, into the end of which is a screw eye, opened enough to slide over the wire of barbed wire. This enables you to get back of the barbs.

In operation, either of them is slipped on the short piece of wire that is to be wrapped around the long piece between posts. Simply by using this gadget as a lever, the wire can be wound tightly, and will stay that way, which is difficult when using nothing but your hand.

New Jersey C. H. DREW

AN APPLE PICKER

To make a handy apple picker, cut the top out of a gallon-size, or larger, tin can. Cut a V-shaped notch about 1½ inches deep along the rim. Fasten a long pole to the can on the opposite side from the notch. Shove the can under the apple so the notch catches the apple stem. Poke sharply and the apple will fall into the can.

Minnesota MRS. L. F. THIESSE

ROTARY HOE FOR PACKING SILAGE

This year the packing of silage in our trench silo was done with one tractor and a rotary hoe pulled backward. We did this instead of using two tractors. We drove across the silo twice per load. This seemed to work very well. The hitch from the tractor to hoe leveled the silage and the hoe packed it. We had no spoilage and the packing was done with half the machine and manpower normally used.

Minnesota JAMES FABER

New Bear Cat
COMBINATION
Grain & Roughage Mill
ALSO ENSILAGE CUTTER
No. 4A
TRAILER MOUNTED
FOR POWER TAKE-OFF

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Outstanding in burr mill performance and construction. Precision machine-ground burrs of Ni-Hard alloy, magnet protected. Large capacity. Trailer mounted with power take-off.

Bear Cat TRACTOR HOIST

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For those who prefer hoist and frame attached to wagon box or dump bed—OUR NEW
WAGON BOX HOIST

Easy to attach. Handy, strong, dependable. Quick change makes it possible to use hydraulic cylinder on more than one wagon.

For full information on these honest-to-goodness grinding outfits, tractor and wagon hoists, and the name of your nearest dealer, write us today. No obligation.

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Hastings, Nebraska - Manufacturers

Do you have a filing system?

Here are some suggestions showing how interesting and helpful it would be to start a filing system of your own.

by Melvin Scholl

I DON'T see how any farming operation, however large or small, can operate profitably without a record-keeping and filing system," says T. F. Cooley, manager of Klondike Farm, Elkin, N. C., home of a famous Guernsey herd.

"We have, what we think, is a rather complete record-keeping and filing system. We maintain a complete bookkeeping system on our entire farming operations as set up by a Certified Public Accountant. Of course, we also have our herd records and production records on each animal."

Not every dairyman would have the time or be too much interested in a complete system as used at Klondike Farm, nor would he need to. However, every dairyman should have some sort of filing system. The importance of keeping records and a simple method of keeping barn records has been discussed. (See Hoard's Dairyman, August 25, 1957, p. 809.)

Purchase a file . . .

The first thing to do is to buy a steel office file. A two- or three-drawer file will take care of the needs of the average dairyman for a long time. It can be purchased quite reasonably from any office supply house, or you can pick up a good secondhand file, if you do not want to invest in a new one.

No business training is necessary to maintain a filing system. All one needs to know is the alphabet. From the moment you start keeping a file, your interest will grow, as will undoubtedly your fields of interest.

A filing system can be just as simple or elaborate as the individual desires. A three-drawer file might include a letter file in the top section, with heavy file folders that are tabbed alphabetically; a herd file in the middle compartment with folders tabbed for each member of the herd; and an information file in the lower drawer, indexed by topic. Here are some of the topics used in my own rather extensive files:

- livestock diseases
- breeding
- calf and heifer care
- feeding
- government and the dairyman
- hay and pastures
- dairy cattle housing
- milking practices
- shows and fairs
- tax information

This list can be extended, depending on the interests and hobbies of the dairyman and his wife.

Braun's Sunny Lea Farm, home of a famous Holstein herd near Waukesha, Wis., employs, besides an ordinary steel filing system for their milk records and correspondence, a separate picture file. This is a box about the width of the pictures with slots for each group. The box is about 20 inches long.

Folder for every animal . . .

A popular method used successfully for many years at Maytag Dairy Farms, Newton, Iowa, involved a separate folder for each animal in the herd. Sires were kept apart from females. Cows with bulls for sale were in a separate drawer. This made for quick reference when bull buyers came. In each folder were pedigrees and pictures of the cow as well as of her offspring.

A more elaborate system is the one in operation at famed Clyde Hill Farms, in Missouri, set up in one of the most modern and attractive farm offices to be found anywhere. First there is a file containing all the cows in the herd, arranged alphabetically, with the daughters of the same sire having the same color tab.

For instance, all "Rock" daughters have a blue tab; "Lad" daughters, red; "Junior," white, and so forth. Inside each folder is a card, on the front of which is the cow's name, number, date of birth, and name of sire and dam. Beneath this are all of her H.I.R. records. On the reverse side is the cow's calving record: Date of calving, sire of calf, registration name of calf, sex, and, if sold, name of buyer.

A similar file is kept on cows no longer with the herd.

A separate picture file, similarly arranged, is kept, as is one for registration papers.

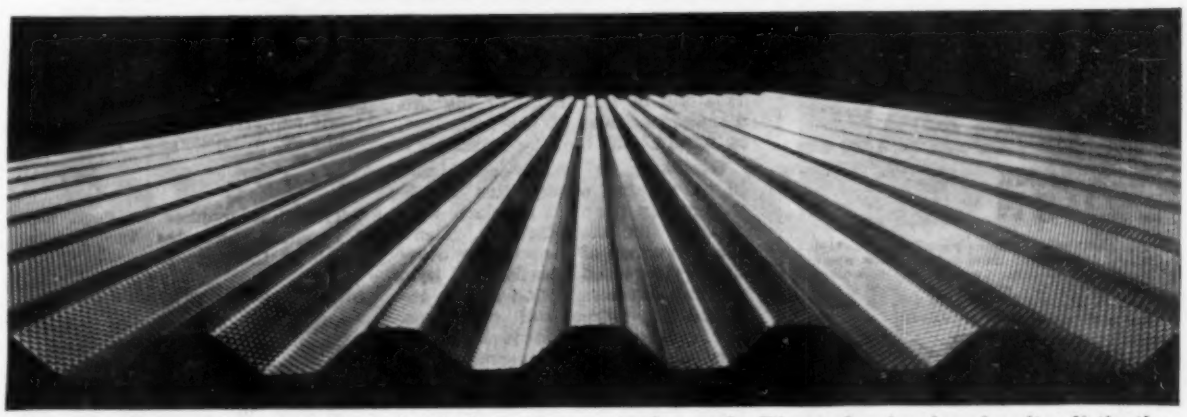
In a letter file all correspondence can be filed in folders tabbed alphabetically, together with carbon copies of all replies sent out.

This office maintains a "Customers' File," in which a record is kept of all animals sold, their ages, dates of sale, sex, sire, dam, price paid, and other pertinent information that might be available from time to time, such as sire provings, Gold Medal ratings, show and classification records, and so forth.

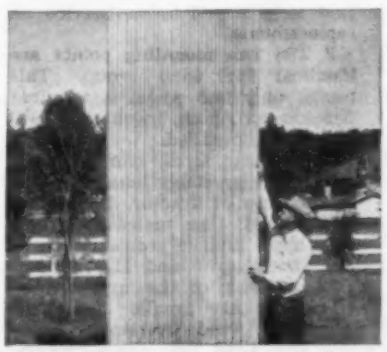
Whatever system is used makes little difference. The main thing is to get one started. Once the value of using a file is realized, it is a safe guess that this rewarding task will never be neglected.

Compare It! New Kaiser Aluminum

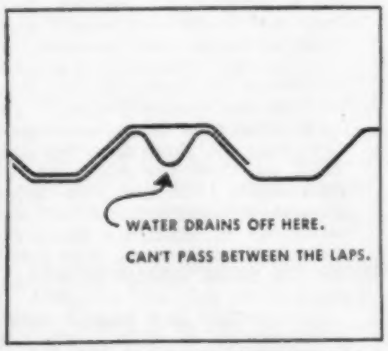
DIAMOND-RIB ROOFING IS STRONGER AND LONGER



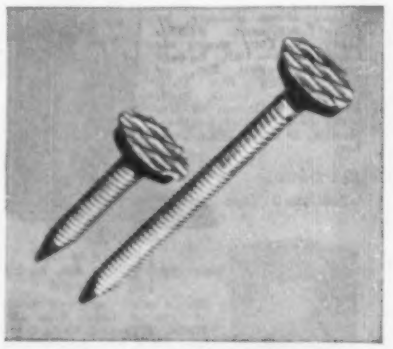
Stronger, Diamond Embossed. Rugged ribbed construction makes it stronger than .024" corrugated, stronger than V-Crimp, stronger than *any* standard aluminum roofing made. Diamond embossing gives it a distinctive appearance, improves glare diffusion. Diamond pattern actually adds to the strength of the roofing sheet.



Extra Wide, Longer. Every sheet covers a net 48" width after lapping. Labor-saving 14' and 16' lengths are standard, and it's also available in 6' to 12' lengths.



Can't Leak. A non-siphoning drain channel, built into every sheet of new Kaiser Aluminum Diamond-Rib roofing, prevents water from leaking between side laps.



Nails To Match. New screw thread nails are diamond embossed to match roofing. Larger head, screw thread, heavier wire size makes them drive right, hold tight.

. . . and it keeps dairy barns up to 15° cooler!

Hot weather is here! And it's a well known fact that milk production falls off as much as 13% at 85 degrees, 41% at 95 degrees.

But you can beat profit-killing heat with new Kaiser Aluminum Diamond-Rib roofing. Hot sun rays bounce right off Diamond-Rib . . . dairy barns stay 15 degrees cooler, milk production stays high.

Heat reflectivity is only *one* of the many advantages of new Kaiser Aluminum Diamond-Rib roofing . . . advantages that will improve your dairy farm and increase your profits. For the complete story on this sensational new roofing and siding sheet, see your lumber, feed or building supply dealer now!

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Provides lowest labor cost of making and feeding silage. Costs no more than a bunk silo . . . often less.

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Style #65 or #70
(with 10", 11" or 12" Tops)

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Handmade on American lasts of the finest leathers, by skilled craftsmen. STEEL SHANKS. Your choice of: LEATHERS— Calf, Re-tanned Waterproof Elk, or Rough - Side - Out Calf. COLORS — Black, Med. Brown, Dk. Brown, or Natural. SOLES—Oak Leather, Neolite, or Crepe Foam Rubber.

#65 Shallow Scalloped Tops →

Order by { Sizes 4 to 12 / Widths AA, A, B, C, D, E, EE

At no extra cost your choice of type of Tops, Toes and Heels. Tops and Vamps are fully lined with perspiration resistant leather. For other styles and made-to-measure boots write for new catalog.

#70 Stove Pipe Tops

15-Day Delivery. Satisfaction Guaranteed.

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Please send me ..... pairs, Style No. .....
Boots @ $20.95.
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Tops in excess of 12" in height $1 per inch.
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NEW TRACTOR TIRES for . . .

more traction, less soil compaction

by Melvin E. Long

IF YOU examine carefully the new tractors now on your dealer's display floor, you may find that the rear tire sizes have new designations. No longer will you see such sizes as 11-38, 13-38, or 11-28. Instead you will see such sizes as 12.4-38, 15.5-38, and 12.4-28. These are the visible indications of a new system for tractor tire sizes, now being adopted by the farm equipment industry.

Primarily, these new sizes have to do with the process of "oversizing" tractor tires.

Learn tire terms . . .

Before attempting to explain further, it might be well to review a few "tire terms."

1. **Rim diameter** — diameter of the rim upon which the tire is mounted.
2. **Section** — this can be visualized as the cross-section of the tire.
3. **Outside diameter** — over-all diameter of the tire, without load.
4. **Rolling radius**—distance from center of tractor axle to ground. This will be less than half the tire diameter because of the deflection, or mashing, of the tire under load.

Oversizing is usually considered to be the use of any tire that is larger than the tires regularly supplied by the manufacturer. There are a number of reasons for oversizing. Increased flotation will help prevent soil compaction and is required for some soil conditions. For greater traction it is necessary on sand and in some cases, greater load carrying capacity may be needed for specialized mounted tools.

Frequently, however, when a farmer purchases a new tractor, he insists upon larger tires, primarily because he believes that they will make the tractor pull more, or make it more powerful.

In the past, there have been two methods of increasing tire size. The first method involved simply the substitution of a tire of larger section upon the same diameter rim. Thus, an 11-38 tire might be replaced by a 12-38 tire. This method was the simpler, and had the advantage of using the same diameter rim and wheel, thus keeping the added expense at a minimum.

This method had several disadvantages, all of which were not readily apparent to the dealer or the customer. As a result of the increased rolling radius, it increased the ground speed without increasing the power take-off (PTO) speed.

When used with a hitch-mounted implement, it affected the geometry of the hitch linkage. It increased the tendency for sidewall buckling under load, increased the tendency for sidewise rolling of the tire when operating on a side slope or with one wheel in the furrow, decreased the fore-and-aft and lateral stability as a result of increasing the height of the tractor, and in many cases actually reduced the drawbar pull. This last situation would occur in cases where the tractor was operating at near its maximum power output.

The increase in ground speed caused by oversizing could only result in decreased drawbar pull.

The solution to this problem has been found in the constant radius, or low section height tire. In the case of this type tire, the section width varies, but the section height remains almost constant for a given rim diameter. Thus, carrying capacity can be increased by oversizing, but still using the same diameter rim and maintaining approximately same rolling radius.

Uniform rolling radius . . .

For convenience and simplicity five groups of tire sizes for regular agricultural tires have been established, in which each group has approximately uniform rolling radius.

Tire designation	Loaded radius, inches
Group I	
12.4-38	27.8
13.6-38	28.5
15.5-38	28.5
Group II	
11.2-36	26.0
12.4-36	26.8
13.9-36	26.8
Group III	
11.2-34	25.0
Group IV	
14.9-28	24.5
13.6-28	23.5
Group V	
12.4-28	22.8

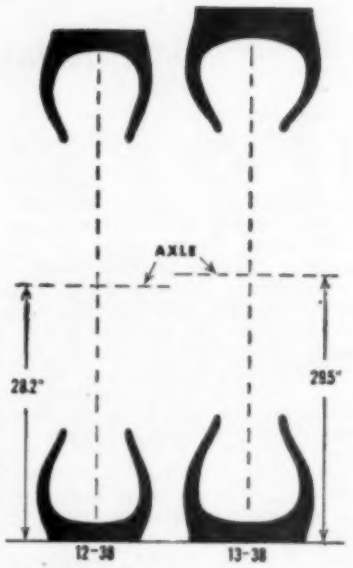
The first number in each size designation indicates the section width of the new tires.

Many benefits provided . . .

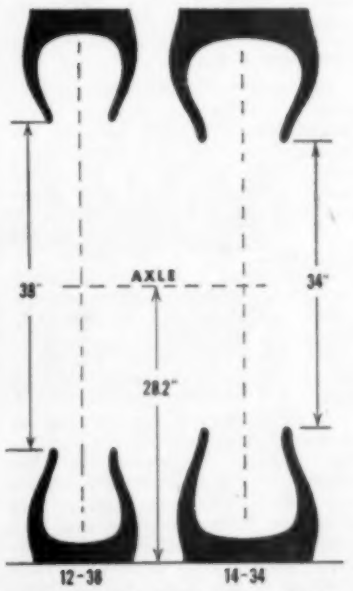
This new system will provide several benefits to the farmer.

1. There are fewer tire sizes. At first glance this may seem to be primarily an advantage for the dealers. Actually, however, it will enable your dealer to carry a complete inventory with less investment, so he will be in a position to give you better service on replacements.
2. The rim mounting points are identical for each group. This means only one wheel is required per group. Again, inventory problems are simplified.
3. Oversize tires can be used without appreciably changing the relationship of tractor, implement, and ground, thus maintaining correct hitch linkage geometry.
4. In group I and II, the outside diameter of the largest oversize tires are smaller than the previously used oversizes. These are the tires for larger general purpose tractors. This small diameter provides for a lower center of gravity. It also permits mounting implements closer to the rear axle than was possible when space had to be left for greater outside diameter oversize tires. These two factors reduce the amount of front end weight needed to balance rear-mounted implements. These factors also provide for greater fore-and-aft stability.
5. Relationship of drawbar pull and the ground speed to P.T.O. speed are not appreciably affected by the use of oversize tires.

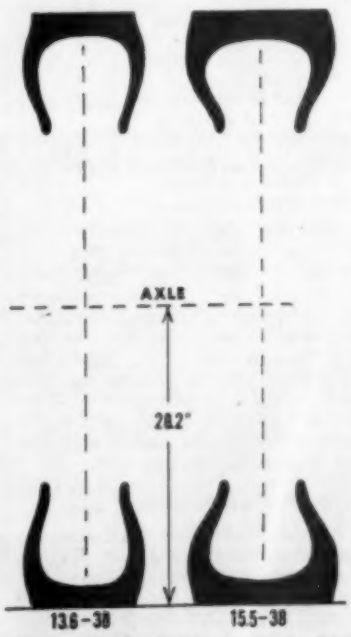
In attempting to increase drawbar pull of your tractor it is well to recognize the following: With adequate weighting to reduce wheel slippage, you can increase drawbar pull, but only by reducing travel speed. Tire size does not increase or decrease your tractor's power. This is determined by the engine.



OVERSIZING, in the past, has been done by using the same rim and the next size larger tire.



ROLLING RADIUS can be maintained through the proper selection of the rim and tire sizes.



NEW TIRES have a low section height that allows width increase, thus adding to carrying capacity.

Use more lime . . .

(Continued from page 765)

to correct soil acidity before the small grain is seeded to legumes.

An acre of soil 6 inches deep weighs about 2 million pounds. For lime to be entirely effective it must be mixed with all of this 2 million pounds of soil.

Deep and complete liming means deep rooting since many of our subsoils are loaded with toxic quantities of aluminum and manganese. Lime will make these elements unusable. Deep and complete liming means deep rooting, which is a certain insurance against drouth. Furthermore, the remains of these deep roots leave channels for drainage and aeration of the subsoil when the soil is turned over. For deeper applications than normal plowing depth, a way must be found to accomplish this job without bringing up the poorer subsoil.

Consider these examples: If we had a ton of soil in a pile, and we expected to neutralize its acidity with limestone, what would be involved? Suppose this soil needed an equivalent of one ton of limestone per acre. This equivalent amount of lime could be held in one hand. We would have to dredge this small amount of limestone through the entire pile of soil. If you dump a bucket of sugar in a barrel of lemonade, you must do some stirring or you will have sour lemonade.

Apply well in advance . . .

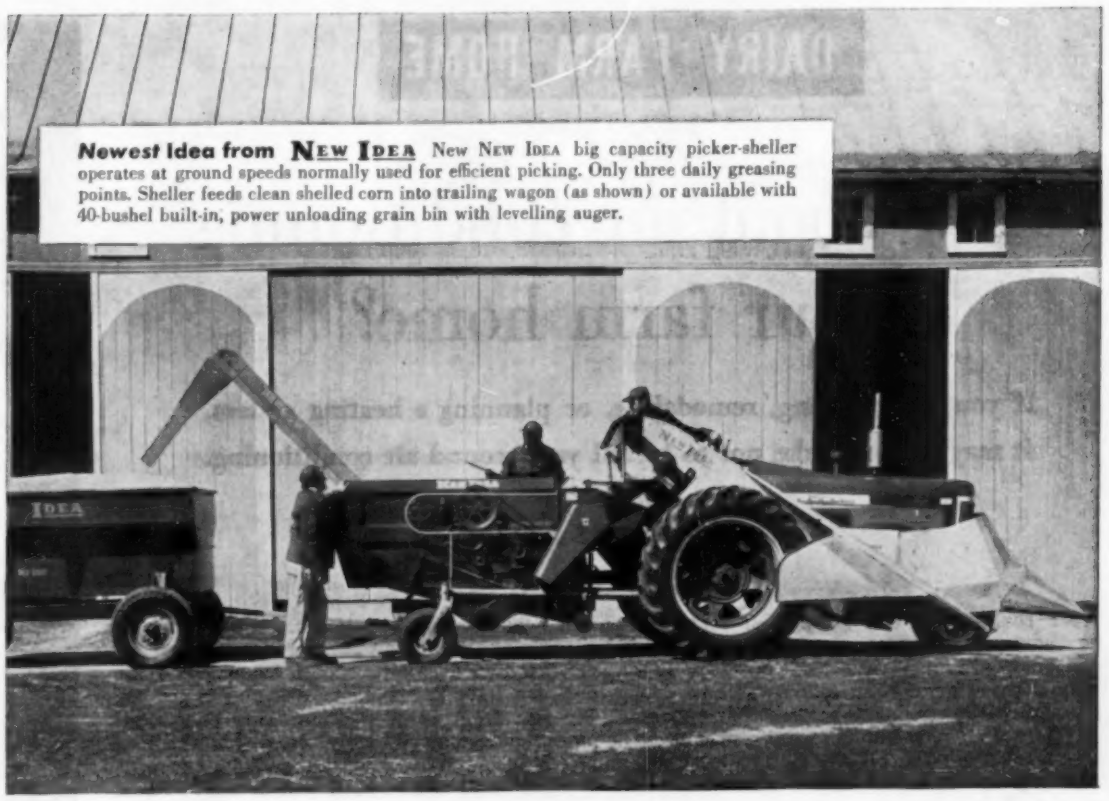
Let us top-dress an established stand of alfalfa with limestone. Alfalfa roots may be two or three feet long, or longer. How long will it take the limestone to leach down to the roots? Lime moves down on most soils about one-quarter to one-half inch per year. You figure it out. Wouldn't it be better to apply the lime well before the alfalfa was planted and be sure the lime was plowed and disked into the soil? Top-dressing deep-rooted legume crops with lime is like a woman who bakes a cake and then sprinkles baking powder on top after the cake is baked. It just doesn't work.

In order to apply lime sensibly, a farmer must know the lime status of his soil. This means soil testing. Not only does it mean soil testing but it means testing with good equipment. Good equipment means more faith by the farmer and the operator in his soil test. Nothing has helped to sell a lime program more effectively than electric soil testing machines or "potentiometers." This simple procedure has helped supply the impetus to many vigorous lime promotion programs.

Most successful farming in the eastern half of our country is impossible without adequate lime.

THE END

"What's he sputtering about? I just made him an egg-nog."



***Newest* Idea from NEW IDEA** New NEW IDEA big capacity picker-sheller operates at ground speeds normally used for efficient picking. Only three daily greasing points. Sheller feeds clean shelled corn into trailing wagon (as shown) or available with 40-bushel built-in, power unloading grain bin with levelling auger.

Now you can

PICK-&-HUSK and PICK-&-SHELL

...*Both* the same day

Team up NEW IDEA's famous 2-row gathering unit with its own trailing husking bed or with the new NEW IDEA field sheller. One man can make the change-over in less than 30 minutes. The sheller operates from the tractor PTO and hugs the gathering unit for easy maneuverability. It lets you harvest your corn earlier. And only three fittings need to be greased daily . . . only ten grease fittings in all!

For the first time you have unlimited flexibility in how you harvest your corn crop. For example, you can harvest ear corn in the morning — shelled corn in the afternoon. Harvest as much as you want, *any* way you want it.

Permits Earlier Corn Harvest. With the new NEW IDEA field sheller you can harvest your corn crop earlier, leaving more time for fall plowing, tillage, and seeding. Earlier harvesting reduces field loss, since stalks and ears are not so dry. And you can frequently sell your shelled corn at high old-corn prices. Shelled corn is easier to handle, requires 50% less storage space than ear corn. With fewer wagon changes, you can harvest more corn per day!

Precision-Engineered for Long Life. The NEW IDEA field sheller was engineered to do one job and one job well: to give you gently-shelled, clean corn—with a minimum investment in equipment.

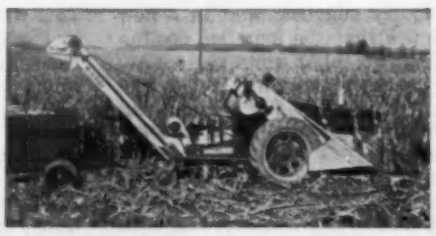
Ruggedly Built for Heavy Corn Crops. There are no delicate mechanisms in the NEW IDEA sheller that may be damaged by cobs and pieces of heavy stalks, no danger of rapid machine depreciation from harvesting corn instead of small grain. The NEW IDEA sheller will give you years of dependable service.

You can buy a NEW IDEA mounted picker or snapper, knowing that the field sheller can be added at any time. If you are one of the many thousands of farmers who already own a NEW IDEA mounted picker, plan to enjoy more versatile, more profitable corn farming by investing in the new NEW IDEA field sheller.

See it at your NEW IDEA dealer's today, or write for free literature.

IN ACTION

See NEW IDEA before you buy



For Cleanest Husked Corn, you can't beat NEW IDEA's famous mounted picker. Its trailing husking unit rides on rubber-tired caster wheels, reducing weight on tractor wheels and permitting operation in soft fields. Husking bed has 10 extra long husking rolls, largest capacity on any mounted picker.

NEW IDEA FARM EQUIPMENT CO. DIVISION AVCO DISTRIBUTING CORP.

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Please send me the following FREE literature

- ☐ 2-row mounted picker
- ☐ 2-row pull-type picker
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- ☐ 1-row pull type snapper
- ☐ 2-row mounted snapper
- ☐ New field sheller

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DAIRY FARM HOME

How about air conditioning your farm home?

If you are building, remodeling, or planning a heating system, it may be a mistake not to install year-around air conditioning.

by Margaret Speers

ANY real farmer can tell you of those hot summer days when the heat saps all the energy a man has and how he gets through them hoping the nights will be cool so he can really sleep and restore that energy. But many a night is hot and muggy; he tosses and turns, beats the pillow, throws it on the floor, and wanders around the house looking for a cool spot. Morning dawns and there's been no good sound sleep. He faces a new day fagged out and grouchy.

Perhaps your family is wrestling with such weather right now. Have you thought of treating yourself to something better?

An air conditioning system is no longer the luxury it once was and it should be considered from the standpoint of your family's comfort, health, and enjoyment, just as are other appliances you buy for your home.

Air conditioning in homes is increasing and two reasons are largely responsible. First, more and more people have "sampled" it in theatres, restaurants, stores, offices, and perhaps in a friend's home and realize it offers much in living comfort; secondly, the air conditioning industry has equipment to fit consumer needs and pocketbooks. It has been predicted that in 10 years air conditioning will be standard equipment in all new homes.

Perhaps the first thought that comes to home owners, and farm home owners in particular, is that air conditioning is not a practical thing for them. Actually a study of facts and information on air conditioning may reveal that quite the opposite is true.

First of all, it is common to think of air conditioning as **cooling only.** Complete air conditioning is much more. It is also control of moisture; it is air cleaning and circulating; and it may include providing a portion of fresh air inside the house. Complete year-round air conditioning also includes heating the air and controlling moisture during the winter months. In this article we shall be talking only about **central air conditioning;** this means centrally located heating and cooling systems that air condition the entire house.

Perhaps the consumer's greatest lack at this point is information about air conditioning itself—the systems used, their operation, installation, cost, and how to go about buying one. No single article of this size could begin to give you the background information it is wise to have before setting out to plan and buy. But there is printed information available to you, both the technical and non-technical variety.

Begin by calling on an air-conditioning contractor or fuel supplier in your vicinity. Talk with him about installations he has made and ask him for whatever booklets and information sheets he has on the subject. This writer has found a booklet called, "Practical Answers to Common Questions about CENTRAL AIR CONDITIONING" a most helpful source of information. The booklet is prepared and edited by Minneapolis-Honeywell as a service to home-owners and consumers. Ask your local contractor or fuel supplier or heating and air conditioning distributor for a free copy. If he does not have the booklets, ask him to get one for you from his air-conditioning equipment manufacturer or directly from Minneapolis-Honeywell.

What size? How much will it cost? These questions usually come to mind first. Size in air conditioning is spoken of in terms of cooling capacity. Actually there is only one accurate way to determine the size of unit required for air conditioning your home. This is by asking a qualified air conditioning contractor to make a personal inspection of your house, taking into account all the things about your home that would affect an air conditioning system. The size of your house, how it is constructed, the kind and amount of insulation it has, its exterior and roof color, the amount of shade it gets, and any unusual exposure to the sun—all these factors and others must be taken into consideration when determining the cooling capacity required.

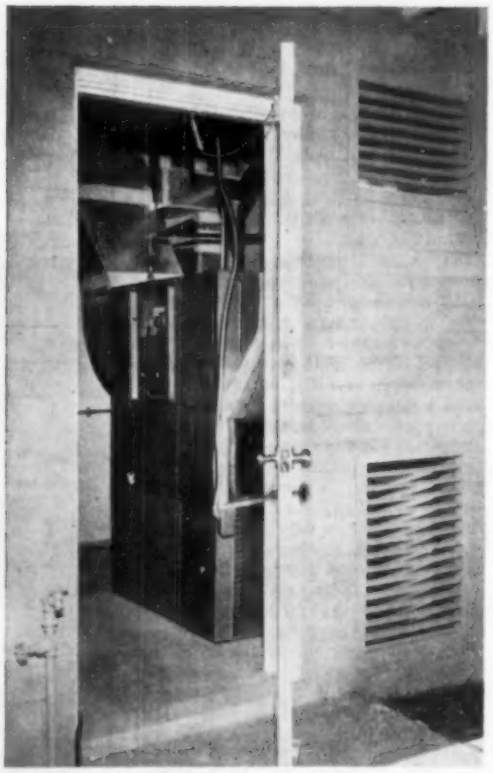
You should know that the capacity of home air conditioning equipment is rated in B.T.U.H. (British Thermal Units per Hour) or in tons. A B.T.U. is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit. A ton of cooling is equal to a cooling capacity of 12,000 B.T.U.'s per hour; such a ton of cooling is equivalent to the cooling effect provided by melting a ton of ice in a 24-hour period.

Most average-sized homes need units with two or three tons of cooling capacity to meet normal summer requirements. However, homes in extreme climates, such as desert areas, may need units with greater cooling capacity. To get a rough, rule-of-thumb estimate of what might be required for your home, figure that each ton of cooling might be able to handle up to 600 square feet of home space.

There are two costs involved, installation and operating. Here, too, estimates of a general or typical nature are difficult for central air conditioning systems are custom installed and costs may vary widely depending on labor costs in your area, the amount of ductwork, piping changes, and electrical work required.

Just to give you some idea of installation costs, the booklet on central air conditioning referred to previously suggests that in **a new home** you can figure that the installed cooling unit will cost about 50 to 70 cents per square foot in addition to central heating costs. The cost of putting air conditioning in **existing homes** will run in the neighborhood of 60 cents to $1 per square foot.

The second cost is the operating cost. It will vary with where you live, with the way your house is exposed to the weather, and with how you use your air conditioning system (See "Getting the Most from Air Conditioning," July 10 issue, Hoard's Dairyman). One rough method of estimating operating costs is to figure on $12 to $20 per ton of cooling in areas with mild summer weather and $30 to $60 per ton per season in hot, humid areas.



PACKAGE UNIT provides heating in winter and cooling in summer, is completely enclosed within the house, and is easily accessible. One register lets in outside air and the other discharges it.

Major types of central air conditioning systems have basically the same primary parts:

1. **A condensing section** to circulate refrigerant through the system and dispose of heat collected in cooling.
2. **An evaporator** to provide the actual cooling for the system.
3. **A fan or water pump** to move air or water through the room distribution system; it frequently serves both heating and cooling.
4. **Automatic control system** which operates the system for safety, comfort, and convenience. It may serve either or both heating and cooling.
5. **Furnace, boiler, or electric heater** to convert oil, gas, or electricity into heat.

The location of the heating and cooling units in your home and in relation to each other determines the type of central air conditioning system you will have. For instance, a few of the major systems are these:

1. **Packaged combination heating-cooling.** In this arrangement all the heating and cooling equipment is housed together as one unit. This is the ideal year-round system that provides cooling in summer and heating in winter by the mere snap of a switch.
2. **Matched packages of heating and cooling.** Here heating and cooling sections are divided into separate units designed so one can be added to the other.
3. **Heating with add-on package cooling.** This is a package cooling system designed for addition to good, conventional heating plants in existing homes.
4. **Heating with attic-type packaged cooling.** This works well where cooling unit is complete in itself and can be located completely away from the heating unit, but uses the conventional heating distribution system.
5. **Separate heating and cooling systems.** This is used where basic heating system does not lend itself to combining with cooling. Each system operates independent of the other.

There are many other systems and variations; contractors work them out to best suit particular homes. The important thing is that you make sure you have a dependable heating-cooling contractor and that the equipment used is backed by a reputable manufacturer.

THE END

7102. Warm topping for chilly shoulders and so pretty, too, this graceful cape is crocheted in easy pineapple pattern. Directions for sizes small, medium, and large included in pattern. Price 25 cents.

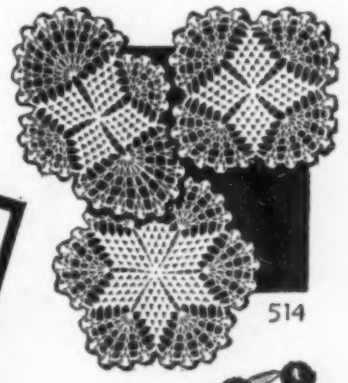
7219. Smiling Humpty Dumpty is stuffed plump with the kiddies' pajamas. He's a lovable doll, but a handy 'jama bag to teach the tots neatness. Transfer for pajama-bag doll and directions. Price 25 cents.

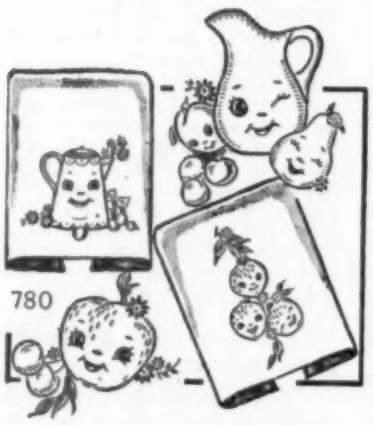
880. Add a royal touch to linens with your monogram. Easy to embroider in lazy daisy flowers and outline stitch. Transfer of 4 complete alphabets, 1½ inches to 2¼ inches in size; 4 flower motifs. Price 25 cents.

742. Whip up a gay toaster doll out of scraps. Her full skirt covers toaster and keeps it dust-free. Transfer, directions, and easy-to-follow pattern. Price 25 cents.

788. Delightful samplers done in simple embroidery. One is a child's prayer; the other gives vital statistics about baby—name, birth date, and so forth. Transfer of 2 pictures 10½ x 15 inches. Directions for framing. Price 25 cents.

514. Three little doilies in easy crochet. Directions for 9½-inch round, 7½-inch square, and 7½ x 11-inch oval, each in No. 50 cotton. Price 25 cents.

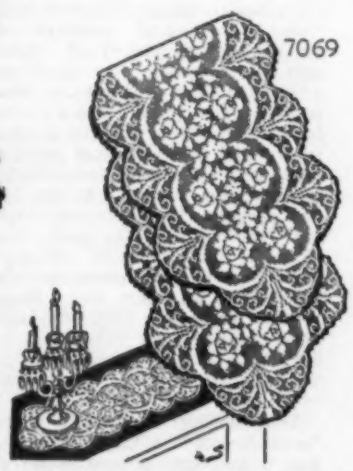




7151. A frilly, ruffled doily is perfect to set off lamps, vases, and china. Starch ruffle to make it perky. Crochet directions for two doilies in No. 30 cotton. Price 25 cents.

7202. Add color to clothing and household accessories with huck weaving designs. Easy to do and fascinating. Chart for four designs and simple directions. Price 25 cents.

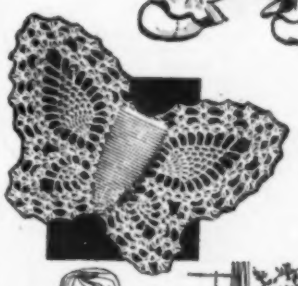
780. A winking pitcher, laughing pear, and bright-eyed apples make amusing embroidery for kitchen towels. Transfer of 7 motifs averaging 6 x 7 inches; 6 smaller motifs for napkins. Use gayest colors. Price 25 cents.



7069. Scarf and matching doilies in lovely filet crochet. Use for buffet, dresser, or as luncheon set. Directions and charts for scarf and doilies in No. 50 cotton. Price 25 cents.

7353. Rope 'em, cowboy! Delight a child with a quilt appliqued with horses and cowboys. Pattern of patches and directions. Yardages for youth and single bed sizes. Price 25 cents.

7043. This merry little cuddle clown is easy to make from a man's size 12 cotton sock. Make clothes of scraps. Pattern and directions for 12-inch sock doll. Price 25 cents.



7172. Crochet a "butterfly" wall planter in white for a "china" look; black for wrought-iron effect. Directions for 16 x 10½-inch planter in heavy cotton. Price 25 cents.

7207. Unusual chair set. Bluebirds are crocheted in pineapple design, combined with simple stitches. Directions for set in No. 30 mercerized cotton. Use for buffet, too. Price 25 cents.

Pattern Nos.	Size

HOARD'S DAIRYMAN, PATTERN DEPT.
Fort Atkinson, Wis.

NO PATTERNS EXCHANGED

$_____ for patterns.

NAME _____ RFD _____

CITY _____ STATE _____

4602. Buttoned yoke tabs add a smart touch to this half-size fashion. Printed pattern in sizes 14½ to 24½. Size 16½ takes 4⅝ yards 35-inch fabric. Price 35 cents.

4599. Half-size casual with convertible collar and choice of short or three-quarter sleeves. Printed pattern in sizes 14½ to 24½. Size 16½ takes 3½ yards 39-inch fabric. Price 35 cents.

4756. Basic fashion for year-round wear. Make it casual or dressy according to fabric. Printed pattern in misses' sizes 12 to 20; 40. Size 16 takes 3⅞ yards 35-inch fabric. Price 35 cents.

4502. Graceful wrap-and-tie blouse. Whip it up in a few hours with our easy printed pattern. Misses' sizes 12 to 20. Size 16 takes 2⅝ yards 35-inch fabric. Price 35 cents.

4616. Teen chemise with all the newest lines; low half-belt in back. Printed pattern in sizes 10 to 16. Size 12 takes 3⅛ yards 35-inch fabric. Price 35 cents.

9047. Becoming lines for the larger figure has smooth midriff and 6-gore skirt. Printed pattern in women's sizes 36 to 48. Size 36 takes 4⅞ yards 35-inch fabric. Price 35 cents.

7180. Quick-to-crochet medallion is beautiful in fine cotton or string. Join medallions for small articles or make tablecloth or bedspread. Easy directions. Price 25 cents.

7173. Use remnants of plaid and plain to make this neat little dress. Trim with ruffles or gay embroidery. Child's sizes 2, 4, 6, 8, 10. Tissue pattern and transfer. State size. Price 25 cents.

Pattern Nos.	Size

HOARD'S DAIRYMAN, PATTERN DEPT.
Fort Atkinson, Wis.

NO PATTERNS EXCHANGED

$_____ for patterns.

NAME _____ RFD _____

CITY _____ STATE _____

From Day to Day

by Lois J. Hurley

I AM, by nature, somewhat of a pessimist. When everything is sailing along smooth as silk I'm always inclined to think that things are going too well; disaster is about to occur to offset the good things that have been happening. It's a tendency I wage a constant battle against.

To help me in my fight, I go strong for such books as "Power of Positive Thinking," "Three Magic Words," and others along the theme that we can help ourselves into the good life by our thoughts. Articles on the subject carry strong appeal to me, too, and in one I read recently I came across an especially compelling sentence.

"Optimists . . . cultivate the promise of the future." This was the thought expressed by a Joseph Newton, writing in a Sunday supplement. This was preceded by the very sensible thought that optimists aren't blind to what may happen to them; they see the pitfalls ahead and avoid them.

This seems to me to be the best formula for optimism that I've run across in my life-long search for help in cultivating the happy quality. And, if you take a moment's time to analyze it, most of the things we do is actually "cultivating the promise of the future."

When we educate our children, we cultivate what they promise in future good. When we buy a farm; when we invest in a commercial business; when we remodel our homes so they are pleasant and functional places; when we take a trip that widens our horizons and broadens our understanding of the world around us, we cultivate what the future holds out in promises for fuller, richer living.

Looked at this way, almost all good living is extending us into a more promising future. Why, then, should some of us look apprehensively over our shoulders for gloom and disaster to overtake us and swallow up our efforts toward happiness and progress?

Fellow pessimists, arise! Take my hand and let's take a step together toward constructive, sensible optimism.

Are you a dreamer?

I mean a sleep dreamer, not a "head-in-the-clouds" dreamer. All my life, I've wandered off, nightly, into the most fantastic worlds and adventures the imagination could possibly encompass. Here I encounter obstacles that take me all night to try and overcome and leave me limp with effort and frustration in the morning. Here I win the fame and acclaim I've never had in the real world of awake and living. Here I find fabulous treasures. Here I meet high romance. Here I sing like an opera star. Here I re-live contacts with long-since dead friends and relatives. And here I have other adventures that wouldn't fit into any recognizable category.

Last spring I actually had a "color-dream." A close friend had just moved into a new house and I had been talking with her about its decorating and at night I dreamed of going from room to room after the decorating had been done and I saw the colors of the walls, draperies, wall papers, and accessories. Has any other fellow-dreamer ever dreamed in color?

Dreams and dreaming are locked-up secrets that have fascinated psychiatrists and other delvers into the mind over the ages. They probably are expressions of our unhibited sub-conscious that is able to float free and take command when the confines of consciousness are relaxed as we sleep. Nobody has yet figured them out, for sure.

I've never heard of the tendency to dream being an inherited one; yet my 12-year-old daughter seems to be following in my footsteps. She gets up mornings telling about the most fantastic dreams she has had, many of which make no more sense than mine.

"Let's get together, some night," she suggests. But, I don't know what might happen if two dreamers of our scope and abilities met in the dream world. The results would be either fearful or wonderful!

Popular questions . . .

Home economists at our state university from time to time answer questions that women ask. Here is one pertaining to a laundering problem that may help you.

Can feather pillows be washed in an automatic washer?

Yes. Check to see that all seams are securely stitched. Make a short rip in the seam at opposite corners. Re-pin the openings securely. This allows air and water to circulate but prevents the feathers from leaking out. Use warm water, your favorite soap or detergent, and a five-minute wash period. Rinse several times and hang outdoors on a fine drying day or dry in the dryer at low heat, if your dryer is the type where variations are possible.

Oven-fried chicken . . .

If you're plentifully stocked with broilers or tender fryers and they are prime favorites with your family and friends for Sunday suppers or picnics, you may save a lot of time by fixing them in the oven.

If you're using broilers, split them in halves or quarters; cut young chickens up in the usual serving pieces. Season with salt and pepper and flour lightly or leave bare of any coating, as you prefer.

Put enough of the fat you prefer for frying chicken into a flat, shallow pan. Use enough to prevent sticking and to give a good browning. When fat is melted, rub the pieces of chicken in it and place skin-side down on a low rack, if available. Otherwise lay them directly in the pan.

Leave uncovered and bake in a 400-degree oven for 30 minutes; then turn and baste with the drippings in the pan. Cook another 30 minutes. Most young chicken will be thoroughly done in an hour.

Add a little seasoning to the fat for variation. Lemon juice, onion salt, a whiff of garlic, paprika, or oregano may make a hit with your family or guests. Chicken may be grilled outdoors in the same manner; aluminum foil may be placed over the grill to hold drippings and fat or a shallow pan may be used.

Few foods have experienced such favorable consumer acceptance as has cottage cheese. In 1957, as in every year during the last decade, per capita consumption of cottage cheese rose to record levels. The rate of 5.2 pounds of cottage cheese per person in 1957 was not only 3½ times higher than consumption during the 1935-39 period. It was also twice as high as the 2.6 pounds per person enjoyed just 10 years ago according to the National Dairy Council.

POULTRY

Feed your layers mechanically?

Is my flock big enough for a mechanical feeder? How much time will it save? What is its operating cost?

by Joe W. Sicer

THE competition that you, as a laying flock owner, must meet if you are to continue long to make money from eggs is probably not from the other flocks in your county but from the most efficient egg-producing area in the country.

Just where this area is going to be is still anybody's guess. It seems to be fairly sound reasoning, however, that the egg producers in it will have large size, well-mechanzied operations.

This does not mean that the sideline poultry flock of the Midwest is doomed. It does mean that if an egg producer is going to operate at a reasonable profit, he must take advantage of every practical efficiency available to him.

The mechanical feeder is one device that many egg producers can use to advantage. The size of flock that will justify the use of mechanized feeding depends largely upon the value of the caretaker's time and interest cost of money.

High wage rates and low interest charges (based on the return that could be earned by investing available capital and time in other parts of the farm business) make mechanization profitable in even small operations. On the other hand, low wages and high interest make it prohibitive except for large flocks.

Results about equal . . .

Before you get down to figuring costs, you should know that a study at Pennsylvania State University showed no significant difference in feed consumption or egg lay between hand-fed and mechanically-fed layers.

Some poultrymen feel that the frequent movement of feed in the mechanical feeder is beneficial.

The constant low level of feed maintained in the trough of a mechanical feeder tends to minimize feed wastage as compared to hand-filled troughs which, at best, are over-filled occasionally. With troughs that are filled more than a third full of feed, the feed wastage can easily run as high as 5 pounds out of every 100 pounds. Without an inner projecting lip along the edge of the trough, it may be even greater.

It is true that mechanical feeders need servicing to keep them in good operating condition. They need watching to make certain that they have not jammed at a corner and piled up feed on the floor. The way some are installed, they can be a nuisance at house cleaning time. But they can cut the time needed to feed.

How much time is saved?

Before you can figure the value of the time you can save, you must know how long it takes you to feed your flock by hand.

Hand-feeding 100 hens averaged 2 to 3 minutes a day on 30 Illinois farms studied. These were mostly small flocks. In Washington, 41 pens of layers were studied with most of them between 500 and 1,500 birds. The range of time required for feeding was from 0.3 to 3.4 minutes per 100 birds per day, an average of 1.08 minutes.

A large commercial flock in Indiana with 2,200 birds per house required 1.17 minutes per 100 hens per day for the mash feeding. The time required for hand feeding decreases very slowly as the flock gets larger. In fact, as flocks become very large, more time may be needed because you must walk further from feed bin to the most distant trough.

With mechanical feeders, time needed is only that required to fill the feeder hopper, plus time for machine servicing. With an overhead bulk feed storage bin, filling the hopper is a matter of seconds. Normally servicing time is merely a matter of a few hours per year. Mechanical feeding can save 85 to 90 per cent of the time as compared with hand feeding.

Investment high . . .

Prices of mechanical feeders will, of course, vary with different makes. The basic unit, including the feed hopper, motor, and driving mechanism usually costs about $300. The trough and fittings usually cost $1.25 to $1.50 per foot.

If you allow 20 feet of trough (40 feet of feeding space) per 100 hens, this would make an investment of $130 per 100 hens for a flock of 300 birds. But the basic unit can handle enough trough for 2,000 or more hens. The investment per 100 hens for a 2,000-bird flock would be only $45.

With hand feeders, the investment per 100 hens will remain nearly constant regardless of flock size. Savings made with larger flocks are those that may come as discounts because of size of purchase. Commercial trough feeders will cost about $20 per 100 hens if 40 feet of feeding space per 100 birds are allowed.

Figuring annual costs . . .

In calculating the relative annual cost of mechanical feeders and hand feeders, you should include depreciation on the equipment, interest on the money invested, taxes, repairs, insurance, electricity, and the labor required.

Of these, the value of labor and the interest cost of money are the two costs that can normally vary widely and affect the size of flock needed to justify mechanization. The interest charge should be at the rate you could earn from investing the same money in other farm operations instead of in a mechanical poultry feeder.

The labor charge should consider not only the cost per hour of labor that can be hired to feed chickens. It should also consider what that labor could earn for the owner of the flock if the time saved by the use of mechanical feeders was used to care for more layers.

For instance, records from the Washington Experiment Station show that over 30 years, the median labor income per hen was $1.54 and that 0.7 hour was needed to care for a hen for a year. This amounts to a return of $2.20 per hour.

Even though the owner may be able to hire labor at $1.20 an hour to feed chickens, that same help if used to tend more hens because of mechanization is worth $2.20 an hour to the owner.

In calculating the table below, it was assumed that mechanical feeders would last for 15 years and hand feeders for 20 years. Actually, the life of mechanical feeders is not yet known.

An insurance rate of $6.60 per $1,000 of equipment value was used; taxes, 20 mills on half of the average depreciated value; repair costs, 3 per cent per year. Electricity and machine servicing were estimated.

Number of hens needed to justify mechanical feeder at different labor and interest values:

Labor (Hour)	Interest 4%	6%	10%
$0.90	2,000	2,200	3,000
$1.20	1,000	1,000	2,000
$2.20	300	300	350

All American Jersey Show revived

The revival of the All American Jersey Show and Sale, which was held regularly during the 1940's, will take place at Columbus, Ohio, October 18 to 21. More than $10,000 in prizes will be awarded.

The All American Jersey Youth Congress will be a featured part of the event. The All American Jersey Sale will be held the evening of October 20.

Judge of the All American Show will be Dr. Clyde Rougeau, head of the animal husbandry department of Southwest Louisiana Institute. A. G. Samuelson, Urbana, Ohio, is the general chairman of the All American Jersey Show and Sale.

Corn in plastic bag

"Canned" corn boosts pig growth, researchers say. Purdue University men are storing high-moisture corn in steel bins lined with air-tight polyethylene film. Initial tests show the sealed grain ferments, becoming a more potent hog feed than ordinary dry corn.

Watch for feature article on the subject in an early fall issue of Hoard's Dairyman.

Warp's Heavy Gauge Plastic
SILAGE COVER
Made of COVERALL Polyethylene
"The Best That Money Can Buy"
Saves Tons of Silage
Stops Spoilage
Economical
Re-Usable

Cut Round at Factory for Easier Installation

Warp's COVERALL Plastic Silo Covers prevent spoilage by SEALING OUT AIR—save users up to $50. Keep Warp's COVERALL over the ensilage at all times, even after the silo has been opened for feeding. COVERALL is not affected by silage acids and will give years of service. Warp's Silage Covers are made of heavy duty 4 mil Black COVERALL—the original plastic sheeting used and recommended for Silage Covers.

PROVED SUCCESSFUL BY THOUSANDS OF FARMERS

3' x 50' Strip for sealing silo doors—$3.50

SIZES AND PRICES
Warp's COVERALL Silo Covers
For 12 Ft. Silo—$5.90 | For 16 Ft. Silo—$8.50
For 14 Ft. Silo—$7.10 | For 18 Ft. Silo—$9.85
For 20 Ft. Silo—$12.50

Warp's Sun-Resistant BLACK COVERALL is Ideal for Trench and Bunker Silos

6 Gauge Black Recommended

Warp's COVERALL is available in bulk rolls in widths up to 40 ft., and in 3 thicknesses. Regular Weight 4 per sq. ft., Heavy Weight 6 per sq. ft. and Extra Heavy at 8 per sq. ft. Has dozens of other farm uses . . . baled hay covers, fertilizer and seed covers, machinery covers, etc.

Take this ad to your Hdwre., Lmbr., or Farm Supply Dealer to be sure you get genuine COVERALL in the Right Size at the Right Price. The name is branded along the edge for your protection.

Made by WARP BROS., Chicago 51—Pioneers in Plastics

BE here... when the FUN begins

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BLACK HILLS
OF SOUTH DAKOTA

YOU'RE invited! To spine-tingling rodeos, Indian dances, real Western celebrations. You and your family are front-row center before majestic Mount Rushmore, on the Needles Highway, the weirdly-beautiful Badlands. It's here and *all* yours in the breathtaking Black Hills of South Dakota.

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LOADS ROUND or SQUARE BALES - on any terrain!
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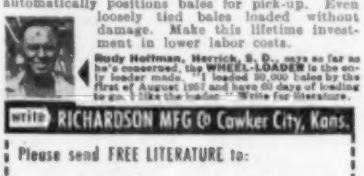

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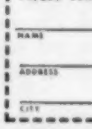

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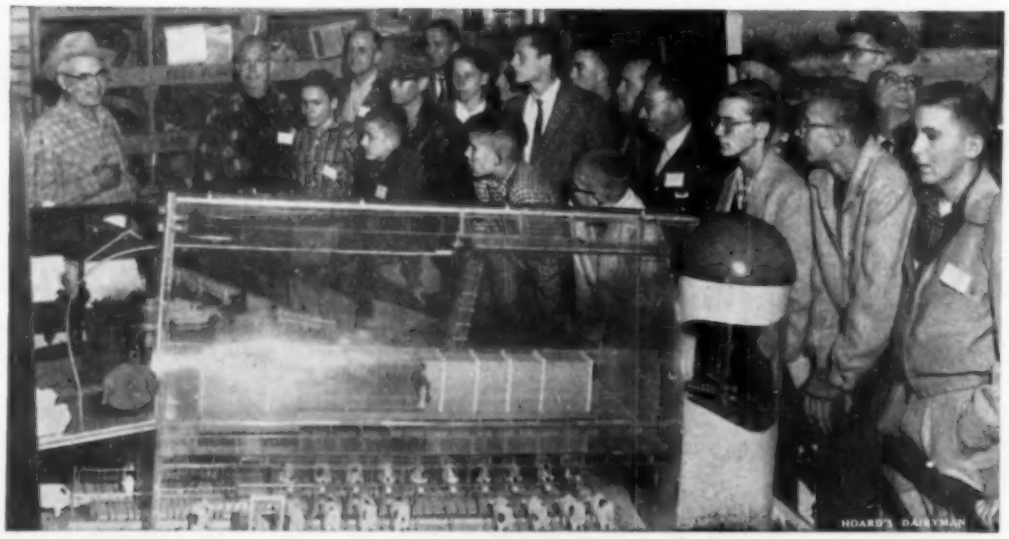
YOUNG DAIRYMEN — *Careers in agriculture* — No. 37

Electrifying farms is my job

We help farmers to live better and to reduce their hand labor through employment of electric heat, light, and power.

by Ralph Bowen



THE AUTHOR, left, discusses a scale model of an all-electric farm with a father-son group. This model demonstrates the chore-saving ideas that are made possible by use of electricity.

THE initial job of utility farm advisers is to help the farmer get connected to existing electric lines or to arrange for the extension of electric lines to serve his farm. The farm adviser also helps the farmer with wiring and electric equipment problems and quite often he sells much of the farm equipment himself until such time as a satisfactory public acceptance has been established and dealers enter into this sales effort.

Some utilities have established the policy of either promoting or developing a great portion of the new equipment needed by their farm customers through manufacturers' agents and dealers rather than direct sales. The company I represent has the former policy. However, at one time we had farm sales people who sold on a commission basis. Our company finally decided that in our operating area it was a better policy for farm advisers to find a dealer who was best equipped to solve the farmer's equipment needs. In this way, we could serve the farmer on an impartial basis.

Be part of community . . .

Originally, the task assigned to farm advisers consisted mainly of each adviser being a part of the community in which he worked. His territory included the group of about 1,000 farmers, plus the residential and commercial customers in the area.

Farmers were not aware of the advantages that electric service presented, so the farm adviser had to be able to present these facts to prospective users. The job soon enlarged to one of collecting information on the proper type, location, and installation of clothes washers, water systems, milking machines, and many other pieces of equipment.

As the need developed, new machines were manufactured or perfected to perform the jobs which farmers expected or hoped to mechanize. The first water systems were powered by gasoline engines. The farmer would start the engine and pump a large tank full of air, which would, in turn, force the water out of the well to the barn and to the house. These water systems were satisfactory but quite expensive to operate.

Soon new types of direct-drive water systems were developed and perfected so that they replaced nearly all of the windmill water systems, which were common throughout the country, as well as the gasoline engine drive-water systems.

Ideas from farmers . . .

It was not long before farmers were trying to make satisfactory gutter cleaners. Most of these farmer-made units were crude, rather impractical, and without refinements for commercial manufacture and sale.

In order to encourage this development so that more farmers could profit by it sooner, we decided to take pictures of the better systems which farmers had developed and show them to people who were in the business of building machines of this type. Strangely enough, we found many of the barn equipment companies unwilling to go into this venture, which, at that time, looked very impractical to most of them. Many of the first barn cleaners were made by small companies started and organized by small farmer groups. In fact, some individual farmers started to manufacture and sell these units. One of the most practical type barn cleaners on the market today was developed, manufactured, and sold by a farmer.

The business of manufacturing and selling a machine is a complicated procedure. It usually takes a great amount of capital and years of experience before a satisfactory organization is developed for the manufacture, installation, sale, and service, to say nothing of making a satisfactory profit.

Many of the original barn cleaner companies have either fallen by the wayside or have been taken over by companies with established sales organizations and service facilities.

This and many other similar experiences have shown us that the most important duty a farm adviser has is to help the progressive farmer do his chores with mechanized equipment and to pass on and help improve the information and good ideas he finds.

We have observed that a farmer will spend a great deal of time searching for the best way to do a chore mechanically before he makes any change in his present operation. If we can help him in this search for improved methods, we become a real service organization to the farm industry.

Many of the machines needed to do farm chores mechanically are still in the development stage and require perfecting before satisfactory operation is obtained.

The best method of adapting new machines into the farmer's present buildings so that they can operate efficiently has been considered by relatively few people. However, all utility farm advisers encounter this problem in their daily work. For instance, some of them are now checking the hot water requirements for clean-in-place pipeline milkers.

The results of these tests, as well as others which have been assembled, will be checked with the results received at the Electric Research Farm at Madison, Wis., and the summation of these findings will be circulated not only state-wide, but nation-wide. (The Electric Research Farm at Madison is financed by an association of electric companies in Wisconsin called the Wisconsin Utilities Association and operated by the University of Wisconsin for the purpose of reducing the chore time on the dairy farm through the use of electric equipment.)

Farming, just like any other business, is becoming so specialized that specialists are called in to service the particular problem.

For instance, today there are poultrymen experimenting in building poultry houses without windows, so that the amount of light per day can be controlled. The use of air conditioning to improve production with controlled temperatures also is being studied by many in this field. When we find a farmer interested in improving his poultry operation, for example, it is a very simple matter for our people to make the proper contacts through channels where reliable information can be obtained.

Training needed . . .

The men who succeed best in this career like to work with farmers and get satisfaction out of helping them improve their living and farming standards. Experience in the utility farm adviser's field is an important factor. However, we believe the man who has been raised on a farm and taken a university course in ag-

ricultural engineering, along with some education subjects required for agricultural teachers, is the man who is probably the best equipped to do the job expected.

These men soon learn where to find the answers to most of the new problems as they arise. They meet with county agents, agricultural teachers, and they have their own state and national organizations which serve as a means of exchanging ideas.

A utility farm adviser's day seldom is an eight-hour day. In fact, there are many days worked with twice the hours if one expects real success in this work. Personally, I feel that because of the many interesting problems and the pleasant association one has in this type of career, it is not work for me but a very pleasant hobby for which I am compensated so that we can live modestly but comfortably and take a nice vacation each year.

To insure security for the future is one of the reasons people work and this security is provided for through pension plans as well as insurance for sickness and accidents which most of us purchase at special low rates.

Our business is serving the public and, consequently, satisfied customers are a necessary requisite to job security.

Travel is heavy . . .

The traveling that is required to do this type of work is another factor which should be considered. Utilities, like most other companies, compensate their men for the travel they are required to do in connection with their job. This travel usually varies according to the area in which you work. I usually travel from 1,500 to 3,000 miles per month and I would say that I have traveled well over a million miles during the time I have been with our company.

It is not all fair weather driving. Many of the miles are in rain, snow, and bad weather.

Strange as it may seem, we are much more welcome on a rainy day or at night when the farmer is not able to work in the field.

Most advisers make an office of their car and carry large boxes of literature and material to hand out to farmers in the hope that it will help solve some of the problems with which they are faced.

Many and varied problems come up each day. The most interesting and challenging one, and that which proved to be the turning point in my career, was receiving company approval to develop an animated scale model of an all-electric farm. This model was constructed to demonstrate to farmers the chore-saving ideas that some of the more progressive farmers had worked out. It has accomplished its original purpose very well, but, in addition, has helped us in other ways.

Farmers are now anxious to tell us of new equipment they have seen in operation on other farms or of ideas they have perfected on their own farms, either to save on chore time or to improve living conditions. The model farm has helped us in many ways:

1. We can take an over-all look at the problem of putting farm chores on a production line basis.
2. It has given us an opportunity to meet with banker associations who are interested in financing farming operations.
3. Agricultural schools have asked to display the model farm to help teach their students better planning arrangement of buildings.
4. Farmer groups have asked to see the new ideas for improving their farm operations incorporated in our model farm.

One of the most gratifying uses we have found is being able, with the use of this model, to show young people who are considering farming as a career that it need not be the drudgery which is usually associated with farming operations.

Many opportunities . . .

Young men interested in being a utility farm adviser have many opportunities through which they can enter this career. First, for the younger farm boys, the different types of 4-H and F.F.A. electric projects, which are now offered, give them a start early in life. They have a chance to get some of the fundamentals of the application of electricity to farming.

When ready for more specialized schooling, most agricultural schools throughout the country have electrical teaching aids which have been coordinated through the utilities to help train young men for this type of career.

Agricultural colleges now have many farm electrification courses which can be taken as a part of the regular agricultural engineering work.

Young farmers who are interested in working with others and who have a natural tendency for mechanical equipment will find that this profession will give them a chance to enter a rather new field which has unlimited opportunities for advancement. **THE END**

BARNEY FARMLAN

"We should have made hamburger out of the bull before he made hamburger out of you."

Safety study shows . . .

There were 32 accidents per 1,000 farm people, 14.4 accidents per 100 farms, and 30 accidents per million man-hours in a one-year Pennsylvania study.

Average cost of accidents was $115, of which $55 was for medical care and $60 for time lost from work.

Boys, 15 to 19, had the highest accident rate, and men, 30 to 39, the second highest.

More accidents occurred from 2 to 4 p. m.; also more accidents occurred on Wednesday and Saturdays than on any other days of the week.

Accident rate per 100 farms increased as the size of farm increased, but decreased per million man-hours.

Accident rate per 100 farms increased as farm mechanization increased, and the rate was about twice as high with tricycle-type tractors as for the four-wheel type.

Generally, people with a high-accident record had unsafe attitudes, but some people who had had accidents developed a safe attitude.

Accidents did not just occur, but were due mostly to human factors difficult to analyze.

For Fast Gains . . . Top Production . . . Less Labor

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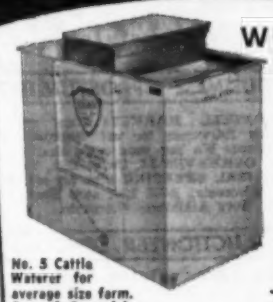
WITH RITCHIE AUTOMATIC HEATED WATERERS

Thousands of farmers are making MORE MONEY from their livestock and poultry this year because they are furnishing them all the fresh, clean water they'll drink . . . in summer and winter! Leading producers and authorities agree that livestock and poultry need plenty of water for fast, cheap gains . . . and they get it with RITCHIE automatic non-syphoning heated waterers. You'll save hours of chore time, too, because RITCHIE Waterers work unattended, 24 hours a day. Heavy all-steel construction.



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108 ACRES, "A" dairy. DAN FORAN, Greenwich, Ohio.

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WANTED A COMPLETELY stocked and equipped dairy farm for 1959 bought on percentage of income from milk. Around 160 acres in Wisconsin or Northern Illinois or would consider other states. V. GOELLNER, 2630 East Main, Decatur, Illinois.

FARMS WANTED

WANTED TO RENT. Young experienced married man with family desires 160 to 240 acre dairy farm to rent for 1959. 50-50 basis. BOX 118, care Hoard's Dairyman, Fort Atkinson, Wis.

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OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-spl

EXPERIENCED WORKING farm manager with own help, one who likes and believes in loose housing and pipeline parlor system, 30 cows in milk. At suburb of Chicago, modern living, good schools, write BOX 119, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANT SINGLE MAN 45 to 50 to operate 100 acre dairy farm. References. Must have 15 or 20 cows. We have plenty feed, pasture, water and equipment. Monthly rent. Board with us. Milk $4.20 cwt. BOX 105, care Hoard's Dairyman, Fort Atkinson, Wisconsin

UNUSUAL OPPORTUNITY for experienced dependable dairy working manager 30 to 40. Share one third of net. Modern farm, milking parlor. Near Monroe, Wis. BOX 121, care Hoard's Dairyman, Fort Atkinson, Wis. 13-2

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EXPERIENCED FARM MANAGER, healthy, reliable, efficient, desires same position on large dairy farm. Lifelong experience in dairy, livestock, crops. Age 38. Have two boys 16 and 14 years. BOX 117, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

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GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 10-*

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SPORTSMEN: World's largest kennels offers 500 Bird Dogs, Straight Cooners, Combination Hounds, Beagle Hounds, Rabbit Hounds, Small Squirrel Dogs, Fox and Deer Hounds. Catalogue free. SMOKEY MOUNTAIN KENNELS, Cleveland, Tennessee. 13-*

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RAISE ANGORA, New Zealand Rabbits on $500 month plan. Plenty markets. Free details. WHITE'S RABBITRY, Delaware, Ohio. 10-*

POULTRY—BABY CHICKS—DUCKS

ROCKS, HAMPSHIRES, Leghorns, Austra-whites $6.99, Pullets $16.99, heavies $6.49, table use $5.99, fryers $2.99, surplus $1.49. BUSH HATCHERY, Clinton, Missouri. 10-*

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LEARN professional cake decorating. Details free. DECO-SECRETS, Venice 34, Calif. 14-*

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FREE—BIG NEW Wholesale Catalog! Up to 50% saving for you, family, friends on nationally-known gifts, jewelry, toys, appliances. Christmas cards, etc. Also make money selling part time! Write: EVERGREEN STUDIOS, Box 846 AB, Chicago 42, Illinois. 15-6

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DAIRY CATTLE

REGISTERED—Guernsey calves. K. V. FARM, Elkhorn, Wisconsin. 11-*

DAIRY CATTLE

SELECT DAIRY CATTLE for sale in Florida. BOB CURLEY, Box 1461, West Palm Beach, Florida. Telephone Overland 31592. 14-5

CHOICE SELECTION of Holstein dairy cows and heifers. Bangs and T.B. tested. GEORGE BRICHER AND SON, St. Charles, Illinois. 5-14

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Dairymen—buying on order will save you time and money. Call or write Fort Atkinson, Wisconsin. Telephone JOrdan 3-5905. 18-*

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone SHerwood 1-1818. 19-*

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REGISTERED Holstein cows, heifers. Certified, Accredited. PAUL VAN CLEVE, Littlestown, Pennsylvania. 2-*

ATTENTION DAIRYMEN and cattle dealers. We can furnish you Holstein heifers to freshen this fall. Cows of all breeds. Let us know your needs. We can supply them. BOTTEMA FARMS, Bridgeport, Indiana. Plainfield 8266. 20-*

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BUY YOUR VACCINATED dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wisconsin. Phone 944-R. 5-17

LARGE SELECTION quality fresh and springer Northern dairy cows and heifers. R. K. MILLER, Rt. 1, Guthrie, Okla. Ph: Bu 2-3435. 12-*

BUY YOUR QUALITY dairy cows, heifers direct from farmers. Vaccinated, T.B. tested. LEONARD ANDERSON, Barron, Wisconsin, Telephone Lenox 7-5056. 13-12

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REGISTERED HOLSTEINS, Guernsey and Brown Swiss. All ages. WALTER McFARLAND, Watertown, Wisconsin.

FOR SALE, 20 Holstein Registered heifers 16 to 18 months. Vaccinated. Records to 650#. MILO A. MILLER & SON, Pekin, Ill. Rte. 2.

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WISCONSIN DAIRY COWS and heifers. All ages. Vaccinated. 500 to 600 lb. heifer calves, (car load lots). On hand all times. DR. HARRY T. LARSON, Route 2, Ashland, Wisconsin. 2-*

FOR YOUR DAIRY CATTLE needs see LINK BROTHERS, INC., Minong, Wisconsin. We are one of Wisconsin's largest order buyers. Holstein and Guernsey heifers our specialty. Always a large number on hand. 9-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 7-*

DAIRY CATTLE WANTED

WANTED 25 900#-1000# Holstein heifers due in 4 to 8 weeks. Must be calfhood vaccinated. Send prices and information to BOX 104, care Hoard's Dairyman, Fort Atkinson, Wis. 14-5

WANTED TO BUY, a farmer owned herd of 30 to 35 grade Holstein cows to increase the size of an existing herd. Must be vaccinated for Bang's. D.H.I.A. records desirable but not necessary. If interested, please write details to K-B Farms, Inc., Belvidere, Illinois.

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HOARD'S DAIRYMAN

Fort Atkinson Wisconsin

Mass DDT spraying legal

Federal court rules against 14 New York residents who sued to halt spraying for gypsy moth.

by John Harms

MASS aerial sprayings of insecticides are apparently here to stay . . . at least for a while.

A Federal judge recently (June 23) upheld the right of government agencies to spray large areas against an insect pest.

In a precedent-setting decision, Judge Walter Bruchhausen, on the bench of the U. S. District Court, Brooklyn, N. Y., handed down his opinion that mass sprayings are "within the proper exercise of the police power of designated (government) officials."

Fourteen Long Island (N. Y.) residents had sued to halt extensive DDT sprayings against gypsy moth infestations. Residents claimed:

1. DDT was injurious to health, property, and wildlife and

2. Aerial spraying was an illegal trespass on individual rights.

Three million pounds of DDT were sprayed over as many acres in New York, New Jersey, and Pennsylvania in 1957. Operations were carried out jointly by the U. S. Department of Agriculture and the states concerned.

Judge Bruchhausen stated in his decision that the suing residents had "failed to establish spraying was injurious to health." Expert witnesses had alleged DDT was a cause of leukemia and other dread diseases of man. Judge Bruchhausen also noted that plaintiffs failed to prove any lasting damage to fish, bird, and bee life.

Summing up his 24-page opinion, the Judge said, "Individuals must yield to the requirements of the public as a whole . . . (Such) spraying clearly is in the public interest."

Meanings behind the historic decision are these: Legal endorsement of mass insecticide sprayings, confidence of the courts in methods used by U.S.D.A., and, most important, the setting of a precedent upon which to base future court decisions on similar cases.

The Judge's decision passes no judgment on possible future dangers of DDT aerial sprays at different rates and different areas; he infers merely that evidence examined by him (it was a non-jury trial) does not support charges in this case. He observes: "DDT has not been in use for a sufficient length of time to definitely evaluate its potentials . . . There are very few experts possessing the requisite broad and intensive experience with this pesticide."

Gypsy moth larvae defoliate fruit, shade, forest, and ornamental trees. Infestations started in 1869 in Massachusetts when a French scientist accidentally tipped over a box containing eggs of the moth.

U.S.D.A. alone or jointly with states aerially sprayed 6.8 million acres in 1957. Other pests mass sprayed that year were spruce budworm, grasshopper, and Mediterranean fruit fly.

A well-planned barn ventilation system is one of the best ways of keeping off-flavors out of milk.

Sales Announcements

August 12, 1958—Holsteins—Mayfields Farm Dispersal, A. S. Browning, Jr., Hendersonville, North Carolina. This farm is located 2 miles west of Hendersonville on Highway 64. Sale starts 11:00 A.M. Every animal from artificial breeding to A.B.S. Sires. Write for information and catalogs to Piper Brothers, Watertown, Wisconsin.

August 13, 1958—Holsteins, Guernseys and Jerseys—Ray C. Walker Dispersal, Mills Spring, North Carolina. Sale starts 11:00 A.M. Piper Brothers, Sales Managers, Watertown, Wisconsin.

August 18, 1958—Holsteins—The Deep South Classic, registered Holstein Sale. Central Park Fairgrounds, Macon, Georgia. Sales Manager—M. B. Nichols, St. Charles, Illinois.

August 20, 1958 — Holsteins — 100 high grade Holsteins at auction, 3 miles south of Mt. Horeb, Wisconsin, on highway 78, at 12:00 noon. Wm. Frye and Otto Sanders, owners. Terms to all farmers by Farm Auction Service, Inc., Mt. Horeb or Lake Geneva, Wisconsin. Bob Keefe, Manager, Bert Pfister and Associates, Auctioneers.

August 23, 1958—Jerseys—The 8th annual S. W. Oregon Jersey Sale at Myrtle Point, Oregon fairgrounds.

August 23, 1958—Ayrshires—First Meredith Farm Production Sale, at noon at the farm at Topsfield, Mass. 6 bulls, 5 heifer calves, 5 open heifers, 24 bred heifers, 20 cows. For catalog write: Tom Whittaker, Sale Manager, Brandon, Vermont.

August 26, 1958—Jerseys—40 Cows and Heifers. Penna. State Jersey Club Sale. 12:30 P.M. Hershey Stadium, Hershey, Pennsylvania. Catalogs, R. O. Samuel, Richboro, Pennsylvania.

August 27, 1958—Holsteins—Hickory Hill Farm complete dispersal. 50 head. Frank E. Cairns, owner. 12:00 noon, D.S.T., Mazomanie, Wisconsin. For catalog in advance of sale, send 50c to Frank E. Cairns, Sales Secretary, Gr. 17, City-County Building, Madison, Wisconsin.

August 28, 1958 — Holsteins — Victor Rhein Dispersal of 140 head of Registered Holsteins will take place at Rosendale, Wisconsin. One of Wisconsin's top herds. Francis Darcey & Sons, Managers, Watertown, Wisconsin.

August 30, 1958—Holsteins—7th Annual Southern Wisconsin Holstein Breeders Fall Bred Heifer sale. 11:00 A.M., Dane Co. Fair Grounds, Madison, Wisconsin. For catalog in advance of sale send 50c to Frank E. Cairns, Sales Secretary, Gr. 17, City-County Building, Madison, Wisconsin.

September 8, 1958—Ayrshires—14 Fresh August, 17 Heavy Springers (Sept. and Oct.) and others. Iowayside Farm. Catalogs. F. L. McHone, Stockton, Iowa.

Sept. 12, 1958—Ayrshires—Southern Tier Club Sale, Fair Grounds, Afton, N. Y. Howard J. Davenport, Pres., Hartwick, N. Y.

September 22, 1958 — Holsteins — Complete dispersal of the Jake Zarnowski purebred herd, at the farm, Newton, Kansas. W. L. Baird Company, Sales Managers, Box 177, Waukesha, Wisconsin.

October 4, 1958—Ayrshires—New York Production Sale, Fair Grounds, Cobleskill, New York, Chas. M. Rodriguez, Chairman, Cropseyville, New York.

October 8, 1958—Holsteins—Dane County Holstein Breeders Nineteenth Annual 4-H-FFA Blue Ribbon Bull and Heifer Sale. Stoughton Fair Grounds. Show at 10:30—sale at 12:30. For catalog write: B. J. Connors, Gr. 17, City-County Bldg., Madison, Wisconsin, or Frank E. Cairns, Gr. 17, City-County Bldg., Madison, Wis.

October 22, 1958 —Ayrshires— Allegany-Steuben Club Sale, Fair Grounds, Bath, New York, Floyd Loper, Chairman, Hornell, New York.

October 29, 1958 — Ayrshires — Finger Lakes Club Sale, Fair Grounds, Canandaigua, New York, Gerald E. Evans, Sec'y., Georgetown, New York.

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From Wisconsin's Dairyland. Certified proof of breeding and production records. We will contract to rebuy these calves anytime from 4 months to 2 years of age at more than current price in your area.

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AYRSHIRE BULL CALVES—We still have a few extra good bull calves that will be old enough for Fall service. Write for pedigrees and prices. Get them young and save shipping costs.

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all ages out of record dams, imported breeding. Reasonable. Write:
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Ayrshires selling September 8

Will travel to meet fall market. 14 fresh in August. 17 heavy springers (Sept., Oct.). Windrow Woodhull Bloodlines. For sale catalog write:
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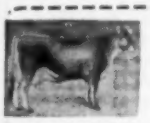

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These facts are:

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For more information about the breed write:
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242 classified animals that average 84.4%
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JERSEY COWS and HEIFERS

Penna. State Jersey Club Sale
Tues., Aug. 26, 12:30 P. M.
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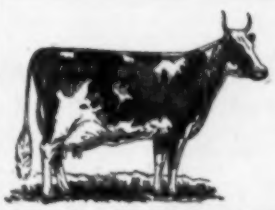

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FIRST MEREDITH FARM
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Saturday, August 23rd, at Noon at the farm at Topsfield, Mass.

6 BULLS — Three are from National Class Leading dams with 2x-305 day records of 779 F at 2-6 yrs.; 811 F at 3-2 yrs. and 868 F at 3-7 yrs. They are all by proven or Approved sires that have been used extensively.

5 HEIFER CALVES — All are from very good record dams including Atwood Orchards Quechy; Approved and Excellent and having 2 dams that average: 13,309 M 4.23% 563F.

5 OPEN HEIFERS — Ready to breed this fall. All are from good record dams, 3 having over 500# Fat. All are by proven sires. Top candidates for the milking line.

24 BRED HEIFERS — They must be seen to be appreciated. A few will be fresh at sale time. The rest due soon. Their dams' records av: 10322 M 4.33% 452 F Act.

20 COWS — A cross-section of the cow herd. Majority due to freshen this fall. A lot have records over 500# F. They are members of dependable families with representatives remaining in the herd.

HEALTH: T.B. Accred., Bang's Certified, Calfhood Vacc., T.B. and Blood Tested within 30 days.
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He's a Senior Superior Sire now —10 daughters average 11,154 lbs. Milk, 634 lbs. Fat.

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50 head registered Holsteins, 28 milking and bred heifers. Mostly Ormsby-Burke breeding, including a daughter of Comet and many granddaughters of Roamer Regal and Comet. Many fresh and due at sale time. 25 years of DHIA and HIR testing. 1957 HIR herd average 466 lbs. fat. Several cows over 600 lbs. fat. 6 times winner of Progressive Breeder's Award. Herd certified for Bang's, accredited for TB and calfhood vaccinated.

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This month we offer the calf pictured above born January 29, 1958. His dam is Stoffell Stylemaster Aaggie who made 15,050 lbs. milk and 505 lbs. fat as a Jr. two yr. old. He is sired by Wis Spotlight (EX.) our Sr. herd Sire who is siring a beautiful type of cattle.

For price and pedigree write
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SALE STARTS AT 10 A. M. (C.D.S.T.)

140 HEAD OF REGISTERED HOLSTEINS

This is one of Wisconsin's finest large herds. The cattle are vaccinated, the herd is certified, classified for type, and have been on H.I.R. testing for some years.

Their H.I.R. production average for the last three years has been 12,200#s milk and 450#s fat.

On last fall's classification they had 1 Ex., 11 V.G., 31 G.P., and 17 G.
Selling 2 animals with over 700#s fat.
8 animals with over 600#s fat.
22 animals with over 500#s fat.

Selling: daughters of Wis Leader, Pabst Regal, Pabst Cyclone, Raven, and Wis Confident.

Featured in this sale is Pabst Raven Leader V.G. (87 pts.) who is a four year old son of Weber Hazelwood Burke Raven from one of the Holstein breed's greatest cows, Plain View Inga Ex. All American aged cow in 1956, Inga had 1,001 fat, 24,609 milk, with 4.1%. Inga's dam is also Excellent.

FOR CATALOG OR INFORMATION WRITE:
FRANCIS DARCEY & SONS **BOX 143, WATERTOWN, WIS.**

BRED HEIFER SALE

7th Annual Southern Wis. Holstein Breeders Fall Bred Heifer sale

SATURDAY, AUGUST 30th - 11 A. M.

Dane County Fair Grounds Madison, Wisconsin

Another Southern Wisconsin Holstein Breeders Sale of Top Heifers

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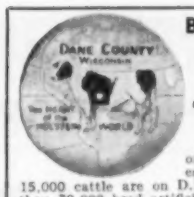

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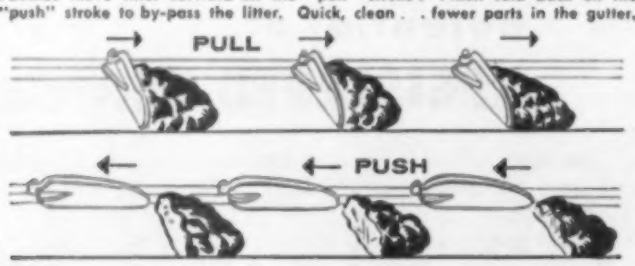

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Questions and answers on leptospirosis

by E. A. Woelffer, D.V.M.

LEPTOSPIROSIS, a disease of humans, domestic and wild animals, is now recognized as a serious and costly infection. Research and experience aid us in learning more and more about it. Here are some questions and answers which may interest you.

How is the infection spread?

The natural medium of transmission is infected urine. The germs which cause leptospirosis largely localize in the kidney. Infected swine and rodents pass a great many organisms in the urine. Urine from cattle generally contains fewer organisms.

During the fever stage, some of the organisms also are found in the milk. Calves nursing cows at this time may become infected. The most common way of acquiring the infection is through cuts or bruises of the skin and mucous membranes.

Which animals are the most dangerous spreaders?

Rodents, such as rats and mice. Other wild animals also may carry and spread the disease. Of the domestic animals, the pig is probably the most dangerous.

I understand there are more than one species of spirochetes which cause leptospirosis.

That is true, there is a long list. Six of this number are known to be infectious to man. So far as animals are concerned, we are primarily interested in three species. The one most important in this country is *L. pomona.*

L. icterohaemorrhagiae is primarily infectious to man and dogs; however, it has been found in cats, pigs, and horses.

L. canicola is primarily the cause of leptospirosis in dogs.

How long do leptospira germs live outside the body?

L. pomona organisms are readily destroyed by heat, freezing, and chemicals. Under favorable conditions the organisms can live quite a long time outside the animal's body. Standing pools of water, such as ponds and marshy land, provide suitable environment for survival of the organisms and are sources of infection to animals.

Scientists have found the organisms live for three to four months in marsh areas. Composition of the soil has a bearing on the longevity of the organism. Acid soils destroy the germs more quickly than other types of soils.

When animals become infected, do they become immune to this disease?

Yes, antibodies are produced in the blood seven to 10 days after infection. They may persist for several years in animals; in humans as long as nin- years.

What are the symptoms and how soon do they appear?

The incubation period lasts about a week. Fever develops early and stays for about three to five days in cattle. During this time the tiny germs can be isolated in the blood. Once agglutinins (antibodies) are formed, it often is difficult to find the organisms in the kidneys.

Besides the fever, the cow may go off feed, drop in milk production, and often show a general depression. Urine may be red tinged. A few cows will exhibit mastitis. Inflammation seldom is present. The udder usually remains soft and pliable. The milk is more yellow in color than normal, slightly thickened, and clotted. Production often is down for about two weeks.

Abortions due to leptospira usually occur two to six weeks following infection. Since it is difficult to isolate organisms from aborted fetuses, it is believed the abortions are due to the production of toxins.

In swine, symptoms of leptospirosis are less severe than in cattle. The fever stage is very short. Abortion appears to be the principal symptom in swine.

My herd is free of leptospirosis; how can I keep it that way?

1. Keep cattle, hogs, and other types of livestock separated.

2. Keep the stock away from streams, particularly standing water, pools, and wet marshland.

3. Eradicate or control rats, mice, and other rodents. If possible, fence out stray dogs and other animals.

4. If you buy replacements, make certain they are negative to the blood test for leptospirosis, and isolate them for three to four weeks.

I have an infected herd; what should I do to get rid of the disease?

Because of some variable and unknown factors, specific recommendations cannot be made. Here are some things which occur in infected herds:

Infected animals become immune or recover from the infection. The resistant period varies in individual animals; usually it lasts for several years. Some recovered animals remain carriers of the infection and are a source of danger to susceptible individuals.

At the present time there is no practical test which will detect carrier animals. Because of this, vaccination probably will become an important part of any control program.

Vaccination for leptospirosis is proving valuable in protecting clean animals; however, more study is required to make it more effective.

Vaccination is most effective in early outbreaks of the disease.

To reduce abortions and acute phases of the disease in swine, it appears necessary to vaccinate sows before every breeding season. Studies in cattle have shown that immunity from vaccination varies from a year to 15 months or more. Vaccination, therefore, is necessary at intervals of 12 to 18 months.

You may ask: Should I have my herd vaccinated? You should consider the matter seriously:

1. If there is evidence of recent infection in your herd.

2. If your herd is adjoining an infected herd, or your cattle are permitted to graze on land downstream from possible infected areas.

3. If some of your animals have returned from shows and fairs.

4. If you buy cattle.

Usually all animals in the herd are vaccinated except positive or recently recovered adults, or calves under 3 months of age.

It has been observed that leptospirosis is self-limiting in small herds, whereas in large herds it tends to persist.

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Scrapie — a disease of sheep

Although scrapie is not found extensively in this country, it is causing regulatory officials, veterinarians, and flock owners considerable concern because it is so difficult to detect. The disease has occurred in a number of states.

The cause is a virus but not too much is known about its natural transmission. The virus appears to attack only sheep over 18 months.

The incubation period (the time that elapses between infection and when symptoms appear) may extend from 38 to 40 months.

Symptoms . . .

Unless observed very carefully, the first signs in the affected sheep usually go unnoticed. Early indications are restlessness and excitability, followed by mild or violent trembling of ears, lips, and limbs.

Often there are indications of intense itching accompanied by grinding of the teeth.

The affected animals may run up against solid objects and continually scratch with their hind feet. Large areas of wool are frequently scraped off as a result of the itching. When the back is scratched by hand, the sheep responds with contraction of the lips and wagging of the tail.

After a few months the animal loses weight, becomes thin, and finally dies. Usually the appetite remains good and there is little or no rise in temperature.

As the disease progresses, the animal loses its co-ordination, and walking becomes unsteady and difficult. In the latter stages the animal is easily excited. This may be followed by convulsions and coma.

Frequently the animal is so weak it cannot rise. The disease is most always fatal. Some recover.

Post-mortem findings . . .

Lesions usually are so small they can be seen only under a microscope. Tiny, blister-like enlargements are observed on some of the nerve cells of a portion of the brain (medulla). There also is some infiltration of lymph cells into the nerve tissue of the brain, spinal cord, and its linings. These microscopic changes are somewhat similar to those found in the chronic meningeal encephalitis.

Since the means of natural transmission is not yet known, adequate control measures cannot be set up. The disease is chronic and because of this it is doubtful if effective vaccines will be developed.

To date, the most positive means of combating the infection is complete destruction of the flock containing infected animals.

The U. S. D. A. Agricultural Research Service, in cooperation with state livestock health departments and veterinarians, is taking special precautions to prevent the spread of the infection.

When the disease is isolated, sheep are destroyed and state quarantine measures imposed. Special efforts are being made to locate flocks that may have become infected by shipment from flocks with outbreaks of the disease.

MAY BE LEPTOSPIROSIS

We have two 4-month-old Guernsey calves from artificial breeding and out of first-grade, top-quality, full-blooded cows. These calves are plump, eat good, and are of slick hair. We feed them calf grower pellets and whole oats mixed with a little cow ration. We feed them ½ gallon oats, ¼ gallon pellets, and ¼ gallon cow feed, twice daily (is this too much grain for them?), plus all the good hay they will eat and warm water in front of them during the day. We have them in a large pen in the corner of our cow barn. We use built-up litter and keep them well bedded.

Our problem is this: Their bowel movements are normal but their urine is pink or blood-colored. Is this dangerous? Our local veterinarian didn't seem to know what it was. What could cause this bloody-looking urine from the heifer calves? We cut the cow feed from the ration and are feeding whole oats, plus the calf grower pellets and good legume hay.

I am worried about this because it might be something that could wipe out my entire herd.

Also, is the meat of a young bull calf that has had virus infection of the lungs safe to butcher for human use? He is being treated now.

Grafton, Wisconsin V. J. B.

The ration you are providing for your 4-month-old calves is satisfactory but it appears you are too generous with the concentrate feeds. At 4 months, less grain (four to five pounds a day) and more high-quality hay is recommended. The calves should be thrifty but not fat.

I do not know the cause of the bloody urine. However, since the calves appear healthy, it is possible there is a low-grade kidney infection present. The cause may be leptospirosis. Coccidiosis also should be suspected.

If leptospirosis is suspected by your veterinarian, he may want to take a sampling of blood samples of the herd, plus the two calves.

If the calf that has had virus infection of the lungs has returned to relatively good health, the meat should be safe for human use.

DISINFECTANTS FOR MASTITIS CONTROL

Will you please tell me what disinfectant to use in my barn to keep down mastitis after all affected cows have been sold.

Henderson, Tenn. R. E. N.

For ordinary disinfection, there are a number of products that can be used. Ordinary quicklime is one of the best and cheapest disinfectants. A 2 per cent solution of lye water, prepared by adding 1 pound of lye to 5½ gallons of water, also is effective. There are also a number of proprietary disinfectants which may be obtained through your veterinarian.

Regardless of which disinfectant is used, it is important to first clean, with hot water and soap or washing soda, the premises of manure and other organic materials.

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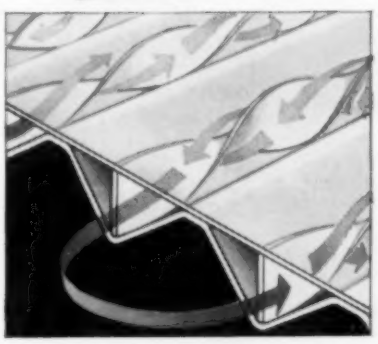
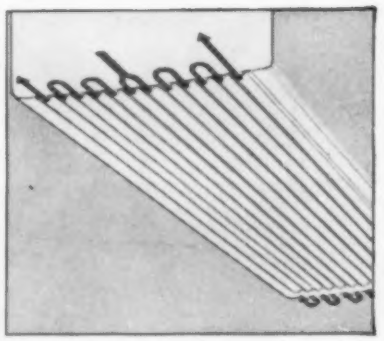


SPECIAL SPIRAL RIBBON FREON MIXERS in the serpentine evaporators spin and swirl the combination liquid/gas mixture. The freon does a complete job of heat transfer.



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- Full bottom cooling with one, two, three, or even four separate cooling plates — depending upon size of tank.
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- Choose from 150 to 800 gallon sizes, all with rugged steel frames.

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